

Volume 4

Pages 563 - 787

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

Before The Honorable Richard Seeborg, Judge

ANIBAL RODRIGUEZ, et al., )  
individually and on behalf of )  
all others similarly situated, )

Plaintiffs, )

VS. )

GOOGLE LLC, )

Defendant. )

NO. 3:20-CV-04688 RS

San Francisco, California

Thursday, August 21, 2025

**TRANSCRIPT OF JURY TRIAL PROCEEDINGS**

**APPEARANCES:**

For Plaintiffs:

BOIES SCHILLER FLEXNER LLP  
333 Main Street  
Armonk, New York 10504

**BY: DAVID BOIES, ATTORNEY AT LAW**  
**ALEXANDER BOIES, ATTORNEY AT LAW**  
**M. LOGAN WRIGHT, ATTORNEY AT LAW**

BOIES SCHILLER FLEXNER LLP  
2029 Century Park East, Suite 1520n  
Los Angeles, California 90067

**BY: ALISON L. ANDERSON, ATTORNEY AT LAW**

REPORTED BY: Ana Dub, RDR, RMR, CRR, CCRR, CRG, CCG  
CSR No. 7445, Official United States Reporter

**APPEARANCES:** (CONTINUED)

For Plaintiffs:

BOIES SCHILLER FLEXNER LLP  
100 Southeast Second Street, Suite 2800  
Miami, Florida 33131

**BY: JAMES W. LEE, ATTORNEY AT LAW**

BOIES SCHILLER FLEXNER LLP  
44 Montgomery Street, 41st Floor  
San Francisco, California 94104

**BY: MARK C. MAO, ATTORNEY AT LAW**

SUSMAN GODFREY LLP  
One Manhattan West, 50th Floor  
New York, New York 10001

**BY: WILLIAM C. CARMODY, ATTORNEY AT LAW  
RYAN SILA, ATTORNEY AT LAW**

SUSMAN GODFREY LLP  
1900 Avenue of the Stars, Suite 1400  
Los Angeles, California 90067

**BY: AMANDA BONN, ATTORNEY AT LAW**

MORGAN & MORGAN COMPLEX LITIGATION GROUP  
201 North Franklin Street, Seventh Floor  
Tampa, Florida 33602

**BY: RYAN McGEE, ATTORNEY AT LAW**

For Defendant:

COOLEY LLP  
Three Embarcadero Center, 20th Floor  
San Francisco, California 94111-4004

**BY: BENEDICT Y. HUR, ATTORNEY AT LAW  
EDUARDO E. SANTACANA, ATTORNEY AT LAW  
SIMONA A. AGNOLUCCI, ATTORNEY AT LAW  
THILINI L. CHANDRASEKERA  
ATTORNEY AT LAW  
CHELSEA HU, ATTORNEY AT LAW**

COOLEY LLP  
4401 Eastgate Mall  
San Diego, California 92121

**BY: MICHAEL A. ATTANASIO, ATTORNEY AT LAW**

Also Present:

**Steve Ganem, Google  
Anibal "Pete" Rodriguez  
Julian Santiago**

I N D E X

Thursday, August 22, 2025 - Volume 4

PLAINTIFFS' WITNESSESPAGE VOL.HOCHMAN, PH.D., JONATHAN

(SWORN)

579 4

Direct Examination by Mr. Mao

579 4

Cross-Examination by Mr. Santacana

659 4

Redirect Examination by Mr. Mao

739 4

RODRIGUEZ, ANIBAL PETE

(SWORN)

750 4

Direct Examination by Mr. Lee

750 4

E X H I B I T STRIAL EXHIBITSWITHDRAWNIDENEVIDVOL.

PX45

567

4

PX72

622 4

PX104

765 4

PX120A

588 4

PX442

648 4

PX489

651 4

PX491

653 4

PX492

654 4

PX493

656 4

Thursday - August 21, 2025

8:10 a.m.

P R O C E E D I N G S

---o0o---

(Proceedings were heard out of the presence of the jury.)

**THE COURT:** Good morning.

**ALL:** Good morning, Your Honor.

**THE COURT:** Okay. There are various items to cover,  
and I will go through them.

On the issue of the transcript of Mr. Pichai, reviewing it  
and seeing what was submitted, I was under the mistaken  
impression, fairly or unfairly -- maybe it was my mistake --  
that a deal had been reached, which was why I admitted it.

In the ordinary course, just like a deposition transcript,  
the transcript doesn't go back. That's like any testimony; if  
they wanted to have a readback, they could -- or hearback, if  
it's a video, they can do that, or ask for it at least, but it  
does not go back. And I was, frankly, surprised that, I guess  
my misimpression that there had been an agreement.

So I will withdraw that as an exhibit. I can either say  
that to the jury -- I would think you would just as soon I not  
say anything; but if you want an official withdrawal, I'll  
consider that.

**MR. CARMODY:** Yes, Your Honor. I mean, I made that  
representation to the Court yesterday afternoon. In other  
words, we talked with counsel; and the intent at the time, my

1 intent, was just to have an appellate record and not have it --

2 **THE COURT:** Oh, I understand. I'm not saying --

3 **MR. CARMODY:** -- and not have it admitted as a  
4 substantive exhibit, and so the other side consented.

5 And we will withdraw that now. And what I wanted to do is  
6 then meet and confer with the other side and talk about if it's  
7 independently admissible, because we've certainly found law  
8 that it is. But that's an issue for another day. For today,  
9 we can happily withdraw this.

10 **THE COURT:** Okay. I doubt a transcript would be  
11 independently admissible, even if it's an admission and all the  
12 rest. It's a matter of form. The transcripts do not go back,  
13 absent an agreement by the parties that they want it to go  
14 back.

15 And I'm not suggesting either side did anything wrong. It  
16 was a misunderstanding between us. I, for whatever reason,  
17 thought this was a deal and you were proposing this deal and it  
18 meant I was formally admitting the thing. So...

19 **MR. HUR:** Thank you, Your Honor.

20 **MR. CARMODY:** Thank you.

21 **MR. HUR:** We do not think that it needs to be  
22 addressed with the jury.

23 **THE COURT:** Okay.

24 **MR. CARMODY:** Thank you, Your Honor.

25 (Trial Exhibit PX45 withdrawn.)

1           **THE COURT:** Okay. Number two is, why don't I take the  
2 issue with respect to, I guess, our next class rep. And  
3 there's some concern, this sort of catch-22 problem of standing  
4 and the legal issue, which, frankly, I wouldn't expect the  
5 class representatives necessarily to grasp.

6           As I said, I've issued some opinions that I think it's  
7 unfair that the -- to say that you lose standing if you stop  
8 using a product that you're otherwise contesting about, but I  
9 know there's a lot of law that's going the other way as well.  
10 It's a mess.

11           Mr. Santiago said for legal reasons. As I read Google's  
12 submission, they're saying -- they're not saying he went too  
13 far, but he went close to the line.

14           I think your next plaintiff, you can get that close but no  
15 further.

16           **MR. DAVID BOIES:** Okay. Your Honor, we don't even  
17 have to get that close. I think the issue here is the Court  
18 has ruled that this is -- goes in because of offensiveness, not  
19 to consent. The Court said that.

20           And the Court did give a clarifying instruction yesterday  
21 during the -- telling the jury that this goes in just to  
22 show it doesn't --

23           **THE COURT:** Did I? What did you think I did?

24           **MR. DAVID BOIES:** During -- during the talk about how  
25 he used these apps going forward.

1           **THE COURT:** Oh, oh, yes. But that's a different  
2 issue, in my mind. What I was talking about there --

3           **MR. DAVID BOIES:** Oh.

4           **THE COURT:** -- was the motion in limine battle  
5 about -- an important battle -- about whether or not the third  
6 party's privacy policies and the interaction between putative  
7 class members and third parties doesn't exculpate Google; that  
8 the issue here is the Google privacy issues vis-à-vis the  
9 putative class members.

10          So that ruling was in your favor.

11          **MR. DAVID BOIES:** Yes.

12          **THE COURT:** What I was saying when they objected is  
13 the limiting principle there was, I was letting them -- you  
14 talk about third-party apps with the class rep because it went  
15 to the class rep's -- how valuable the class rep viewed  
16 privacy.

17          **MR. DAVID BOIES:** Yes.

18          **THE COURT:** So that a class rep -- I thought the point  
19 that was being made was, "Oh, you care a lot about privacy, but  
20 you don't even bother looking at the privacy policies of the  
21 third-party apps."

22          I thought that's where that was all going, and I said you  
23 can do that.

24          But, Google, you can't suggest that if a third-party app  
25 had a private -- that a putative class member uses a

1 third-party app and there's some consent to use there, that  
2 that gets Google out from under.

3 **MR. DAVID BOIES:** I gotcha. Okay.

4 **THE COURT:** Does that make sense to you?

5 **MR. DAVID BOIES:** Yes, it does completely, Your Honor.

6 I thought one of the things they were doing was saying,  
7 "You continued to do this after you knew," and that that  
8 somehow vitiated the consent.

9 **THE COURT:** Well, and the problem, as I understand  
10 what Google is presenting to us, is this -- it is, I guess, the  
11 fact that some of the -- particularly the class  
12 representatives, one of the reasons they, from your  
13 perspective, are continuing to utilize their Google accounts,  
14 and the like, is concern that if they stopped doing so --

15 **MR. DAVID BOIES:** Yes.

16 **THE COURT:** -- there would be an argument that they no  
17 longer have standing in this case.

18 **MR. DAVID BOIES:** Exactly.

19 **THE COURT:** I would actually -- I don't view -- I  
20 wouldn't find that they wouldn't have standing, but there's a  
21 lot of law out there that now says, "If you stop, you're no  
22 longer -- you're divested of standing."

23 But the problem is, that may be one of the reasons that  
24 they're doing -- they're continuing to utilize it, but it gets  
25 us into a complete quagmire with the jury about legal standing,



1 and I mean, we don't want to go there. I think that's --

2 **MS. AGNOLUCCI:** Yes.

3 **THE COURT:** -- the issue we're talking about.

4 **MS. AGNOLUCCI:** Your Honor, there's sort of three  
5 buckets of reasons that the plaintiffs have given for not --  
6 for continuing to use their apps.

7 The first is, "I like them. You know, my fantasy football  
8 league uses it, so it's too hard to stop."

9 **THE COURT:** Right. "And I shouldn't be put in the  
10 position because you're screwing up" -- this is them speaking.

11 **MS. AGNOLUCCI:** Right.

12 **THE COURT:** "I shouldn't have to change my practices  
13 because of your stuff."

14 **MS. AGNOLUCCI:** Fair. No objection to that.

15 The second is, "Well, we needed to keep doing the same  
16 thing because we have experts who are investigating the case  
17 and they need to, presumably, see what's happening in order to  
18 render an opinion." That's Bucket 2.

19 Bucket 1, Bucket 2, that's what they said in their  
20 depositions.

21 Yesterday we hear Bucket 3, which is, "Well, for legal  
22 reasons, I'm legally obligated and I want to make Google change  
23 its practices."

24 That's the bucket that we're alleging is inappropriate for  
25 commentary. They can still say, for example, that their

## PROCEEDINGS

1 experts needed to investigate; but to, you know, inject  
2 injunctive relief --

3 **THE COURT:** Well --

4 **MS. AGNOLUCCI:** -- into this is inappropriate because  
5 that's not the function of the jury here.

6 **THE COURT:** No. But I think it is one of the reasons  
7 why these class representatives are continuing to use it.

8 And I think what Mr. Santiago said was fine, and I think  
9 he can do that. What I don't think we want to do is then get  
10 into an extended discussion about standing and all of that.

11 But he's under oath to testify what the reasons are that  
12 they're -- and he's asked the question: Why are you continuing  
13 to use the Google services? And one of the reasons is,  
14 frankly, he's been told that he probably needs to do so to  
15 preserve standing.

16 **MS. AGNOLUCCI:** Well --

17 **THE COURT:** That's just the fact.

18 **MS. AGNOLUCCI:** That's what they're saying now. It's  
19 not what they said in their depositions.

20 **THE COURT:** Well, that is one of the reasons, I  
21 suspect. And I think what Santiago said was fine. I wouldn't  
22 go -- I don't think he can go beyond that.

23 I will stop any discussion about "You understand legal  
24 standing," "what you mean by 'legal.'"

25 Don't you probe it on cross or else you'd open the door.

## PROCEEDINGS

1 But I think they -- you said in your submission to me, "He went  
2 close to the line but didn't go over it," and I agree.

3 **MR. DAVID BOIES:** Okay.

4 **MS. AGNOLUCCI:** Well --

5 **MR. DAVID BOIES:** We will --

6 **MS. AGNOLUCCI:** -- that's fine, Your Honor, but it  
7 does open up a lot of questions about what exactly --

8 **THE COURT:** Only if you open it up.

9 **MS. AGNOLUCCI:** -- they were told.

10 Well, I can't because they're claiming privilege.

11 **THE COURT:** Well, plus you don't want to go there.

12 You don't want to go into a standing discussion --

13 **MS. AGNOLUCCI:** Well, I don't want to discuss the --

14 **THE COURT:** -- with these witnesses.

15 (Simultaneous cross-talk.)

16 (Reporter interrupts to clarify the record.)

17 **MS. AGNOLUCCI:** I'm sorry.

18 I don't want to discuss the legal doctrine, but I do think  
19 it's relevant, for example, "Did you -- in order to have  
20 standing, did you have to keep using every single app, every  
21 single app the same way?"

22 **THE COURT:** No, I don't think that -- I think  
23 that's -- no, I don't buy that. So it goes no further than  
24 Mr. Santiago went.

25 Okay. Next, I know that Google says they want to talk

## PROCEEDINGS

1 about my order yesterday with respect to Mr. Marsiglia's  
2 transcript. I do not want to hear further discussion. I've  
3 spent a lot of time with this. I understand your arguments.  
4 I've made my ruling. That doesn't mean we're going to reargue  
5 everything. No more discussion. Live with it.

6 **MR. SANTACANA:** We haven't requested to discuss that,  
7 Your Honor.

8 **THE COURT:** Yes, you did.

9 **MR. SANTACANA:** To discuss Miraglia?

10 **THE COURT:** Apparently, that's what I was told by my  
11 courtroom deputy.

12 **MR. SANTACANA:** I must have misspoken. I listed  
13 MIL 16 and 17. 16 is about Hochman's slides.

14 **THE COURT:** Yeah. And you said you've resolved that.

15 **MR. SANTACANA:** We have resolved that. That's the  
16 good news.

17 **THE COURT:** That's good.

18 **MR. SANTACANA:** So there's no other issues.

19 **THE COURT:** Well, I was told that you wanted to  
20 rediscuss Marsiglia, but --

21 **MR. McGEE:** Yes, Your Honor.

22 **THE COURT:** -- if you don't, that's good.

23 **MR. McGEE:** Yes, Your Honor. After they filed MIL 16,  
24 we were still in the process of meeting and conferring. Cut  
25 those slides. Not an issue for today.

## PROCEEDINGS

1           **THE COURT:** I now have lost track of what we're  
2 talking about, but okay.

3           **MR. SANTACANA:** And I misspoke, Your Honor. I think  
4 it was just one clarifying question, which was whether  
5 Your Honor is excluding Exhibit Number 4 as part of your order.

6           **THE COURT:** Yes.

7           **MR. SANTACANA:** Okay. Thank you.

8           **THE COURT:** That's a fair clarification.

9           **MR. SANTACANA:** That was just a clarification,  
10 Your Honor.

11           **THE COURT:** That's good.

12           **MR. SANTACANA:** No argument.

13           **THE COURT:** I like it.

14           **MR. MCGEE:** Your Honor --

15           **THE COURT:** Yes.

16           **MR. MCGEE:** -- I didn't think we had anything to  
17 discuss, but there were designations that you kept where  
18 Number 4 came in. It was just the discussion of Number 4.

19           **THE COURT:** The document does not come in. There may  
20 be some confusion, and I was a bit confused because there's  
21 some reference to "exhibit" in there, and I was wondering why  
22 that was still there if the document went out. The document is  
23 not coming in. Number 4 is not coming in.

24           Now, if that means there's some confusion in the  
25 transcript designation where it says something about an exhibit

## PROCEEDINGS

1 and you think that now is misleading, you guys can talk about  
2 it and get rid it. But I thought -- I went through it, and it  
3 was a little bit confusing, but it flowed.

4 **MR. McGEE:** And, Your Honor, I had understood, based  
5 on the discussion yesterday, that Number 4 would come in not  
6 for the truth of the matter asserted.

7 **THE COURT:** 4 is not coming in. You're not going to  
8 get Number 4 in. End of story.

9 **MR. McGEE:** Understood, Your Honor.

10 **THE COURT:** All right. The final thing on my list was  
11 the unjust enrichment footnote in the Lasinski report.

12 Is Lasinski testifying today?

13 **MR. DAVID BOIES:** No, Your Honor.

14 **MS. BONN:** No, Your Honor.

15 **THE COURT:** Okay. I'm sort of tempted to deal with  
16 this, then, once we get through with the day. So why don't we  
17 do that.

18 **MS. BONN:** I think that's fine.

19 **MS. CHANDRASEKERA:** Thank you, Your Honor.

20 **THE COURT:** Okay. Any other issues that are not  
21 covered?

22 **MR. MAO:** If I may just have a moment, Your Honor --

23 **THE COURT:** Yes.

24 **MR. MAO:** -- just with the other side?

25 **THE COURT:** Yes.

## PROCEEDINGS

(Discussion off the record.)

**THE COURT:** Okay.

**MR. MAO:** Your Honor, we just have a -- we're trying to work out, essentially, admission of the plaintiffs' data.

**THE COURT:** The admission of the plaintiffs' data?

**MR. MAO:** Yeah. I think we've worked it out, but they're just checking the data just to make sure that they have no objections to it.

**THE COURT:** Is this coming up for the next witness?

**MR. SANTACANA:** Right away, yeah, in the morning.

**THE COURT:** Well, why don't you continue to --

**MR. SANTACANA:** Yeah, we're looking at it.

**THE COURT:** -- see, and then tell me when you've either got some issue or it's resolved. Then I'll come back, and then we'll bring the jury in.

**MR. SANTACANA:** Appreciate that, Your Honor.

**THE COURTROOM DEPUTY:** Court stands in brief recess.

(Recess taken at 8:25 a.m.)

(Proceedings resumed at 8:32 a.m.)

(Proceedings were heard out of the presence of the jury.)

**THE COURTROOM DEPUTY:** Please remain as you are and court will come to order.

**THE COURT:** Okay.

**MR. SANTACANA:** So, Your Honor, there's a list of exhibits the plaintiffs want to admit through their expert that

## PROCEEDINGS

1 contains raw analytics data. We are reserving the right to  
2 object, but don't currently object, and want to see how the  
3 testimony comes in.

4 The concern that you have is simply that if the raw data  
5 goes back to the jury with no context from testimony of an  
6 expert, that they will effectively have source code in the room  
7 and not know what it means and have no testimony to interpret  
8 it.

9 So we'd like to see how he testifies. The objection would  
10 be a 403 objection if all they do is put it into the room and  
11 he hasn't said anything about it, but if he lays a good  
12 foundation and explains what they might be looking at, then we  
13 probably won't object.

14 **MR. DAVID BOIES:** That makes perfect sense to us,  
15 Your Honor.

16 **THE COURT:** Okay. We'll see how it transpires.

17 All right. Any other things before we bring the jury out?  
18 They're all here.

19 **MR. SANTACANA:** No. Thank you, Your Honor.

20 **THE COURT:** Okay.

21 (Proceedings were heard in the presence of the jury.)

22 **THE COURT:** Our jury is present.

23 Good morning, members of the jury. Thank you again for  
24 being prompt.

25 Next witness.



## HOCHMAN - DIRECT / MAO

1           **MR. MAO:** Plaintiffs would like to call to the stand  
2 Dr. Jonathan Hochman.

3           **THE COURT:** Very well.

4 (Dr. Jonathan Hochman steps forward to be sworn.)

5           **THE COURT:** Good morning.

6           **THE COURTROOM DEPUTY:** After you have a seat, would  
7 you please raise your right hand?

8                       **JONATHAN HOCHMAN, Ph.D.,**  
9 called as a witness for the Plaintiffs, having been duly sworn,  
10 testified as follows:

11           **THE WITNESS:** I do.

12           **THE COURTROOM DEPUTY:** Great. Thank you. Make sure  
13 you don't slide off the stairs there.

14           Could you speak clearly into the microphone for our court  
15 reporter. Could you please state your full name for the record  
16 and spell your last name.

17           **THE WITNESS:** Jonathan Hochman, H-o-c-h-m-a-n.

18           **THE COURTROOM DEPUTY:** Thank you.

19                       **DIRECT EXAMINATION**

20           **BY MR. MAO:**

21           **Q.** And good morning. I'm Mark Mao for the plaintiffs.

22           Could you please introduce yourself to the judge,  
23 the Court, and also the jurors?

24           **A.** Good morning. My name is Jonathan Hochman. I'm a  
25 computer scientist from New London, Connecticut.

1 Q. What degrees do you have, Dr. Hochman?

2 A. I have a Bachelor of Science, two Master's of Science, and  
3 two -- a Master of Science and a Master of Philosophy, and a  
4 Doctorate in computer science.

5 Q. What do you do for work, Dr. Hochman?

6 A. I teach at Yale University, and I also have a consulting  
7 business.

8 Q. Can you tell us a little bit about your consulting  
9 business?

10 A. Yes. We help businesses, large and small. Initially, we  
11 started doing a lot of Web development and Internet marketing.  
12 More recently, we've had a lot of people come to us for help  
13 with their computer problems, especially problems that result  
14 in litigation. So these days, I tend to focus on litigation  
15 consulting within my consulting practice.

16 Q. You -- did you have any previous businesses, find any  
17 start-ups, anything like that?

18 A. Yes. I had a start-up called CodeGuard, which was in the  
19 business of providing backups for website code and databases.  
20 We were protecting a million different objects.

21 And I also have a current start-up called Universal Name  
22 System, which is a system for more conveniently identifying  
23 people and data on the Internet.

24 Q. How many articles have you published, Doctor?

25 A. I've published several articles. It depends how you

**HOCHMAN - DIRECT / MAO**

1 count, but I have a couple of academic papers and I have my  
2 dissertation.

3 **Q.** And how many -- how many depositions have you testified in  
4 in this area, Doctor?

5 **A.** I've testified over 60 times, including -- and also in 20  
6 trials.

7 **Q.** When you testify as an expert in these cases, are you  
8 always on the plaintiff side?

9 **A.** No. It's roughly half-and-half.

10 **Q.** And what kind of courses do you teach at Yale?

11 **A.** This semester I'm teaching a seminar called "Digital  
12 Identity Infrastructure," and I'm also a secondary instructor  
13 for a class on advanced C++ programming.

14 **MR. MAO:** Your Honor, I'd like to, under Federal  
15 Rule 702, qualify Dr. Hochman as a technical expert in the  
16 fields of software development, digital advertising, Internet  
17 security, and digital technology.

18 **MR. SANTACANA:** No objection, Your Honor.

19 **THE COURT:** The witness will be so designated.

20 You may proceed, Mr. Mao.

21 **BY MR. MAO:**

22 **Q.** Dr. Hochman, can you explain to me what your assignment  
23 was for this case?

24 **A.** Yes. My assignment in this case was to find a baseline  
25 and test whether the WAA and sWAA switches were doing what the

1 baseline suggested they would do.

2 **Q.** And what kind of materials did you consider and evaluate  
3 in order to render your opinion in this case?

4 **A.** So I received technical documents from Google. I also  
5 received Google's answers to our technical questions. And I  
6 reviewed internal correspondence of Google employees, and I  
7 reviewed public statements by Google.

8 And I also received data from Google. This was data  
9 related to the app activity of our plaintiffs, also data  
10 related to some test devices that we set up and some test apps  
11 that we created in order to get even more detailed information  
12 about the behavior of their system.

13 **Q.** Dr. Hochman, did you prepare any slides for your testimony  
14 here today?

15 **A.** Yes, I did.

16 **Q.** Will these slides help you in explaining your professional  
17 opinion in this case?

18 **A.** I think so.

19 **MR. MAO:** With the Court's permission, I'd like to  
20 present and use these slides on the screen, Your Honor.

21 **THE COURT:** Very well.

22 **BY MR. MAO:**

23 **Q.** On a high level, Doctor, can you explain to us what your  
24 opinions in this case are?

25 **A.** Yes. So there's four main opinions.

1 Opinion Number 1 is that Google created some software,  
2 such as Firebase and Google Mobile Ads. These are called  
3 software development kits. And the purpose of these is to  
4 access people's devices and allow Google to take data from the  
5 devices related to their app activity, especially when the  
6 people are using non-Google apps.

7 **Q.** What else, Doctor?

8 **A.** The second opinion is that Google -- that I had a  
9 baseline, and my baseline is that Google, based on their public  
10 statements, their public web pages, statements of their people  
11 from top to bottom, had suggested that the users would have  
12 control over what data Google was taking from their devices,  
13 whether that data was being copied, and how it was being used.

14 **Q.** Anything else, Doctor?

15 **A.** Yes. The third opinion is that during the entire class  
16 period, Google was taking this data from people's devices when  
17 they were using non-Google apps, they were saving and using  
18 that data, they were copying the data, and that this was  
19 continuous throughout the time period.

20 **Q.** Anything else, Doctor?

21 **A.** Yes. When the Web & App Activity, or sWAA, controls were  
22 turned off, the data that Google took from people's devices was  
23 used throughout Google's business in ways that helped Google to  
24 make money, but also which impacted the users and caused  
25 injuries to the users.

1           **MR. SANTACANA:** Objection, Your Honor. Outside the  
2 scope of his report.

3           **MR. MAO:** We obviously disagree, Your Honor.

4           **MR. SANTACANA:** He has not disclosed an opinion about  
5 injury to users.

6           **MR. MAO:** I think that's premature, Your Honor,  
7 because I think perhaps you should see what the slides actually  
8 say because it's well within the ambit of his report; for  
9 example, how it consumed data, how it consumed resources.

10          **THE COURT:** Why don't --

11          **MR. MAO:** Yes.

12          **THE COURT:** I will overrule the objection without  
13 prejudice. You can renew it as we get a little further along.

14          **MR. SANTACANA:** Thank you, Your Honor.

15 **BY MR. MAO:**

16 **Q.** Let's go on to Opinion Number 1.

17 First, Doctor, what exactly is an SDK? That gets thrown  
18 around a lot here. What is an SDK?

19 **A.** Sure. An SDK is a collection of computer code that helps  
20 a developer, it makes it easier for a developer to create an  
21 app because it provides some ready-made features that they can  
22 use.

23 **Q.** What role did the SDKs play in Google's collection of data  
24 in this case?

25 **A.** So the SDKs provided useful features to the app

1 developers, which they would want to use; but the SDKs also  
2 came with Google Analytics for Firebase, which is a product  
3 within the SDK that gathers data, it takes data from the users'  
4 devices and gives that data to Google.

5 **Q.** I understand there's two different kinds of SDKs here  
6 Google released that's at issue in this case. Can you explain  
7 a little bit about these two different kinds of SDKs?

8 **A.** Sure. There's the Firebase SDK, which is -- provides a  
9 bunch of different utilities and data collection. And there's  
10 also Google Mobile Ads, which is an SDK that allows a publisher  
11 to put ads into their app. And Google Mobile Ads interfaces  
12 with a couple of Google's advertising services. One is AdMob  
13 and the other is Ad Manager.

14 **Q.** And what about the Firebase SDK in this case? Can you  
15 tell me a little bit more about that?

16 **A.** Sure. Firebase provides a number of useful features for  
17 developers. Importantly, it provides Google Analytics for  
18 Firebase, which will give some reports to app developers so  
19 they can understand how the app is being used, and -- but it  
20 also is collecting event-level data, granular data that Google  
21 saves.

22 **Q.** If we could move on to the next slide, what is a  
23 third-party app, Doctor?

24 **A.** A third-party app is an app that's not published by  
25 Google. So it could be -- well, there's Starbucks, Disney,

1 Bank of America, Reddit, *New York Times*. There's a whole bunch  
2 of third-party apps. There's, in fact, 2.3 million different  
3 apps out there.

4 **Q.** And how prevalent are the two types of Google SDKs in this  
5 case on the various apps in the various mobile phone stores?

6 **A.** So these two SDKs are very prevalent. Firebase is used in  
7 97 percent of Android apps. It's extremely prevalent in the  
8 top thousand Android apps, 97 percent. And it has presence in  
9 54 percent of the top thousand iOS apps. Those are the apps  
10 for the Apple iPhone.

11 **Q.** What about Android?

12 **A.** In Android, it's 97 percent of the top thousand apps.

13 **Q.** You said in your expert report in this case that all the  
14 class members are exposed to Google Firebase and Mobile Ads  
15 SDK. What is the basis for that opinion?

16 **A.** So the basis for the opinion is that all of these users  
17 have a Google Account and they are using a smartphone. And if  
18 you look at probability of an app being -- of the Firebase SDK  
19 being present in an app, even if you underestimate it, say it's  
20 just in 50 percent of apps -- that's a low estimate -- if you  
21 think about the average person, over the class period, which is  
22 98 months, if you use just ten apps during that period, the  
23 chance of running into this SDK is about -- is better than  
24 99.9 percent.

25 **Q.** If we move on to the next slide, what is your second



1 opinion that you're presenting here today, Dr. Hochman?

2 **A.** The second opinion is that I established a baseline. In  
3 order to do my testing, I had to understand what I was testing  
4 against. So my baseline is that Google had created this  
5 expectation that people could control whether Google was taking  
6 their data and copying it and using it, and that when the  
7 Web & App Activity switch was off or when the supplemental  
8 Web & App Activity switch was off, when either switch was off,  
9 Google wouldn't take their third-party app data and use it.

10 **Q.** What type of materials did you consider to decide and  
11 evaluate this technical baseline that you were testing for?

12 **A.** So I looked at the Android screens that describe the  
13 controls. I looked at Google's privacy policy and related  
14 pages. I also considered statements by Google's employees from  
15 top to bottom. And those were some of the things that informed  
16 what I should be testing against.

17 **MR. MAO:** Your Honor, I'd like to move into exhibit  
18 Exhibit -- it's PX120A. And the reason why it's "A" as opposed  
19 to 120 is because I think the 120 we had before was a little  
20 bit hard to read.

21 Obviously, you're free to examine it. The language, I  
22 represent, is exactly the same. Are there any issues with  
23 this?

24 **MR. SANTACANA:** Is that in here?

25 **MR. MAO:** Yes.

1           **MR. SANTACANA:** No objection.

2           **THE COURT:** Go ahead.

3           So do you want 120 -- are you seeking to admit 120A and  
4           leaving also 120 in there? It's just a second version?

5           **MR. MAO:** Yeah, I think that's easier, Your Honor,  
6           because you might --

7           **THE COURT:** Yes.

8           Mr. Santacana, he's moving to admit 120A. We already have  
9           120 in there. Any objection?

10          **MR. SANTACANA:** No objection.

11          **THE COURT:** 120A will be admitted.

12          (Trial Exhibit PX120A received in evidence.)

13          **MR. MAO:** Thank you, Your Honor. This way it creates  
14          no confusion in case it was used in the last two days in court.

15          **BY MR. MAO:**

16          **Q.** Looking at Exhibit 120A, Dr. Hochman, how did you use this  
17          to consider -- for your technical opinion on the baseline?

18          **A.** Okay. So when someone has an Android phone, they can hit  
19          the gear icon, the settings, and then they can hit a secondary  
20          menu item like privacy and security, and that will show this  
21          screen -- or privacy, they get to this screen which says  
22          "Activity controls," third from the bottom.

23          And what it says there, front and center, when they first  
24          encounter the control is that they can choose the activities  
25          and info you allow Google to save. So this -- this is a

1 control that affects whether Google is allowed to save your  
2 data.

3 Q. And --

4 A. And then --

5 Q. Go ahead.

6 A. Sure.

7 And on the third screen, I think, the -- well, the second  
8 screen just shows the controls, which I think everyone's seen a  
9 few times already, so I won't belabor that.

10 The third screen, at the bottom, the lower box says [as  
11 read]:

12 "To let Google save this information" -- which  
13 is the third-party app activity data -- "Web & App  
14 Activity must be on" and "The box next to 'Include  
15 Chrome history and activity from sites, apps, and  
16 devices that use Google services' must be checked."

17 And in that case, that Google services is referring to  
18 Google Analytics for Firebase or Firebase. That's what it's  
19 referring to.

20 Q. Anything else it might be referring to?

21 A. It could be referring to Google Mobile Ads also. That's  
22 another Google service.

23 Q. Next slide, please.

24 And this is Exhibit Number PX62, which is already admitted  
25 into evidence.

1     **A.**    So this is an excerpt from the Google privacy policy.  And  
2     it says -- and I read this [as read]:

3                 "We understand this is a big responsibility and  
4     work hard to protect your information and put you in  
5     control."

6     **Q.**    Next slide, please.

7     **A.**    And this is another excerpt.  It says [as read]:

8                 "And across our services, you can adjust your  
9     privacy settings to control what we collect and how  
10    your information is used."

11   **Q.**    What is your understanding in terms of your technical  
12   baseline?  What are you testing against here, reading these  
13   disclosures?

14   **A.**    I'm testing against the idea that the switch is a control  
15   that either allows a flow of your third-party Web & App  
16   Activity to Google, it allows them to take that activity and  
17   save it and use it; or if you shut one of those switches off,  
18   if you shut either switch off, it should stop Google from  
19   taking, copying, and saving your third-party Web & App Activity  
20   data.

21               **MR. MAO:**  If you don't mind putting up Exhibit  
22   Number 2.

23               This has already been admitted into evidence, Your Honor.

24               **MR. SANTACANA:**  Objection, Your Honor.  We were told  
25   this witness would not testify about consumer expectations.

1 He's not an expert in consumer expectations. And this is a  
2 user study about consumer expectation.

3 **THE COURT:** I haven't heard the question yet, so I'm  
4 not sure what he's going to use it for. So let's hear what the  
5 question is and then you can object, if necessary.

6 What's the question?

7 **MR. MAO:** Sure.

8 **BY MR. MAO:**

9 **Q.** Dr. Hochman, did you have a different understanding of how  
10 these controls are supposed to work than other people?

11 **A.** No. My understanding --

12 **MR. SANTACANA:** Objection, Your Honor. I renew my  
13 objection.

14 **THE COURT:** Well --

15 **MR. MAO:** Let me rephrase, Your Honor.

16 **THE COURT:** Go ahead.

17 **BY MR. MAO:**

18 **Q.** Okay. Did you have a different understanding of how these  
19 controls are supposed to work against other Google employees?

20 **MR. SANTACANA:** Objection, Your Honor.

21 **THE COURT:** Well, I'm going to sustain the objection.  
22 I'm not sure I quite follow the question.

23 Go ahead. Next question. Sustained.

24 **BY MR. MAO:**

25 **Q.** What is your understanding, from reviewing internal Google

1 documents, as to what the technical baseline is supposed to be  
2 for these controls?

3 **A.** My understanding, from reviewing the Google internal  
4 technical documents, is that everyone thought these controls  
5 would stop Google from taking and copying and using all of  
6 people's third-party app data.

7 **MR. SANTACANA:** Objection, Your Honor. I move to  
8 strike.

9 **THE COURT:** Overruled.

10 Go ahead.

11 **BY MR. MAO:**

12 **Q.** Okay. Did you review internal surveys which Google had  
13 conducted and was evaluated by the Google employees?

14 **A.** Yes.

15 **Q.** Have you seen Exhibit Number 2 that's been admitted into  
16 evidence?

17 **A.** Yes.

18 **Q.** Did you use Exhibit Number 2 -- sorry.

19 Did you consider Exhibit Number 2 for the purposes of  
20 rendering your technical opinion?

21 **A.** Yes.

22 **MR. MAO:** Can we put up the page the doctor wanted.

23 **BY MR. MAO:**

24 **Q.** Is this one of the pages which you considered?

25 **A.** Yes.

1 Q. And can you explain to us how this helped you in terms of  
2 rendering your technical opinion in terms of what you were  
3 going to test against?

4 A. I wanted to be sure that I had a good baseline to test  
5 against, that I was testing the right thing.

6 Q. And what was your conclusion from reading this?

7 A. Well, I read what it said. It said that -- I would assume  
8 that whatever data was pumping out from, like me, using a  
9 web browser, would no longer be recorded. And it also says it  
10 will stop giving Google permission to store my activity.

11 Q. I'd like to put up Exhibit Number 9, which was also  
12 admitted into evidence, before I ask the question.

13 Sorry. Before I display this, did you consider any other  
14 internal Google documents for the purposes of rendering your  
15 technical opinion on how the technology was supposed to work?

16 A. Yes.

17 Q. Was Exhibit Number 9 one of them?

18 A. Yes.

19 Q. Okay. Is this Exhibit Number 9 in which you had used for  
20 the purpose of rendering your technical opinion?

21 A. Yes.

22 Q. Okay. Can you walk us through this document in terms of  
23 what you had concluded from it?

24 MR. SANTACANA: Your Honor, I object. This is not --

25 THE COURT: You can ask him what he considered, but

1 the focus is the technical focus, not what --

2 **MR. MAO:** Sure.

3 **THE COURT:** -- consumers think or not.

4 He's not an expert on that.

5 **MR. MAO:** I understand, Your Honor.

6 **THE COURT:** Okay? So, next question.

7 **MR. MAO:** Sure. Sure.

8 **BY MR. MAO:**

9 **Q.** What is your understanding as to what the WAA and sWAA  
10 buttons were supposed to do?

11 **A.** My understanding of what these buttons are supposed to do  
12 is that they should give consumers control, just plainly like  
13 what they say. You can control whether Google is taking,  
14 saving, and using your data.

15 **Q.** And you said that in the -- for the purposes of coming to  
16 that conclusion, technical conclusion, you had also reviewed  
17 internal Google documents; is that correct?

18 **A.** Yes.

19 **Q.** And were there Google engineers and employees internally  
20 that had agreed with your understanding of the baseline?

21 **A.** Yes.

22 **Q.** Let's move on to the next slide.

23 Sorry. It would be Opinion Number 2. Oh, sorry. Opinion  
24 Number 3.

25 Doctor, what is your third opinion?



1     **A.**     So my third opinion is that throughout the class period,  
2     Google was taking, copying, and using users' third-party app  
3     activity data regardless of the position of the switches.

4             **MR. MAO:**   Your Honor, I actually had a question, if we  
5     can just go off the record for a moment, on use of  
6     interrogatories. I just want to know how they make it,  
7     actually, to a jury. I'm going to put up Interrogatory  
8     Number 1.

9             **THE COURT:**   I'm not sure I understand what you're  
10    asking.

11            **MR. MAO:**   Okay. Well, let me try that, sure.

12            **THE COURT:**   Just ask questions and then --

13            **MR. MAO:**   Sure, sure.

14            **THE COURT:**   -- we'll deal with it.

15            **MR. MAO:**   If we can put up the slide on Exhibit -- on  
16    Interrogatory Number 1.

17            **THE COURTROOM DEPUTY:**   Should this be displayed to the  
18    jury?

19            **MR. MAO:**   Yes. It's -- we've stipulated to this.

20            For the record, this is Plaintiffs' Interrogatory  
21    Number 1, I believe Supplemental Responses Number 4, page 9.

22            Do you have any objections?

23            **MR. SANTACANA:**   Sorry. I don't think -- what are you  
24    asking?

25            **MR. DAVID BOIES:**   Is this Interrogatory Number --

1           **MR. WRIGHT:** Interrogatory Number 1.

2           Sorry, Your Honor.

3                   (Co-counsel confer off the record.)

4           **MR. MAO:** Okay. Sure.

5   **BY MR. MAO:**

6   **Q.** Doctor, have you seen this interrogatory response before?

7   **A.** Yes.

8   **Q.** Did you consider it for the purposes of rendering your  
9   technical opinion?

10   **A.** Yes, I did.

11   **Q.** Okay. Can you tell me a little bit about what this is in  
12   terms of the Google response? What does it describe?

13   **A.** Yeah. This is a schematic that describes technically how  
14   Google is taking data about third-party app activity from  
15   users' phones.

16   **Q.** Can we focus on the left-hand side here.

17           Can you explain to the jury what this Google response is  
18   telling us in terms of how the data flowed and what data was  
19   being collected?

20   **A.** Sure. The first box represents what's going on on the  
21   user's phone. So -- so through the Firebase SDK, the app  
22   interaction data generated by the user interacting with the app  
23   is going to be gathered, and it's gathered into a data bundle.

24           And Google -- that data bundle includes some things. It  
25   includes the event data. Okay. An event is like something

1 you've done on your phone. All right? It could be, you know,  
2 starting an app or selecting a different app screen, clicking  
3 to a different screen. There are probably 25 different events.  
4 We can look at those maybe in more detail.

5 The data bundle also includes some identifiers. It says  
6 here some acronyms. Those are identifiers. Those are unique  
7 personal identifiers. They identify that phone and the person  
8 who's carrying it.

9 There's also some further IDs, some Google IDs, that may  
10 be included.

11 And there are also user properties. These are like  
12 demographics, like age, gender, location, other things. We  
13 also could go into those in more depth too if you want to.

14 **Q.** Yes. Let's stay here for a moment.

15 Let me just understand. What exactly is an event data?  
16 What is event data?

17 **A.** Event data is one event that's happening in the app on the  
18 user's phone. So it's one thing the user has done, one step.

19 **Q.** Is event data aggregated data?

20 **A.** No.

21 **Q.** So Google -- is Google here collecting event data or  
22 aggregated data?

23 **A.** Google is collecting event data.

24 **Q.** So in a typical, for example, action in which I'm, for  
25 example, viewing a page on an app, how many event datas might

1 that collect?

2 **A.** Well, it depends what you do on the page, but it could  
3 generate multiple events. And if you're using an app --  
4 you know, you open an app and you do a variety of things in the  
5 app -- you could generate dozens of events, maybe even  
6 hundreds.

7 **Q.** If I open an SDK-using app, does that generate an event?

8 **A.** Yes.

9 **Q.** If I'm looking at a specific page on an app, does that  
10 generate an event?

11 **A.** Yes.

12 **Q.** If I then move to a different page, does that generate an  
13 event?

14 **A.** That's another event.

15 **Q.** When I stop, go to another app, does that generate an  
16 event?

17 **A.** Yes.

18 **Q.** When I come back, then, to that app to do something else,  
19 does that generate an event?

20 **A.** Yes.

21 **Q.** And does that continue tracking me, collecting events, as  
22 long as that SDK is on that app?

23 **A.** Yes. As long as one of Google's SDKs, either Firebase or  
24 Google Mobile Ads, is in the app, those events are being  
25 collected.

1 Q. And all of those events are not aggregated data; isn't  
2 that correct, Doctor?

3 A. No. They're collected, actually, as individual events,  
4 and they're loaded into the data bundle as individual events.

5 Q. Sir, I apologize. I interrupted you.

6 Can you tell us why -- or what is happening here before it  
7 goes to that next step called consent checks? What is that?

8 A. Okay. So there's that sort of bold arrow. That's showing  
9 Google taking the data bundle from the user's phone. That data  
10 bundle goes across the Internet and it comes to the second box,  
11 which is one of Google's servers. That's where Google does a  
12 variety of processing on that data packet.

13 So the first thing they do when the data packet arrives is  
14 Google makes a copy of the packet. It duplicates it. So one  
15 packet is received and then Google copies it, and now there are  
16 two packets there.

17 After that's done, Google performs a consent check.

18 Q. So let me make sure I understand this.

19 Google collects and copies the data before it checks for  
20 consent; is that correct?

21 A. That's right.

22 Q. And that is what this graph is actually showing; is that  
23 correct?

24 A. Yes. And it's doing this regardless of the position of  
25 the WAA and SWAA switch. The position of the switch doesn't

1 change the collecting or the copying. That happens every time,  
2 all the time.

3 Q. So all of the systems designed to check for consent, the  
4 data is duplicated before it even does that; is that correct?

5 A. Correct.

6 Q. Doctor, going back to the second step right here, is DSID  
7 a personal identifier?

8 A. Yes, it is.

9 Q. Is DSID a pseudonym?

10 A. Yes, it is.

11 Q. How could the DSID both be a pseudonym and personal  
12 information?

13 A. Okay. So I'll have to -- I'll have to explain a little  
14 bit about that.

15 It's personal information because it's an identifier.  
16 It's a unique identifier for each person. Each person, each  
17 device has one DSID. And the device is personal. Your phone  
18 is in your pocket. It's you. It's very personal.

19 The DSID is also a pseudonym because it's not your proper  
20 name. It's just, like, a number.

21 Q. I see that there's other IDs noted here on this data  
22 bundle. Are those other IDs also personal information?

23 A. The IDFA is, because it's also a device identifier. And  
24 the other IDs also are. Some of the other IDs are -- one of  
25 them is an app instance ID. It's a mouthful. But the app

1 instance ID is like a serial number for your app.

2       Firebase generates a unique app instance ID for each copy  
3 of the app. All right? So the same way, like, your  
4 refrigerator has a serial number that's different from all the  
5 other refrigerators, even though they all look the same, it's  
6 like a serial number that identifies your copy of the app.

7 **Q.** Can we show the next slide, which is Interrogatory  
8 Response -- just page 11, that same interrogatory.

9       The interrogatory is a sworn statement by Google. Is that  
10 your understanding?

11 **A.** Yes.

12 **Q.** Did you consider this sworn statement response by Google  
13 for the purposes of rendering your technical opinion?

14 **A.** I did. I read it very carefully.

15 **Q.** And what is this response telling you?

16       **MR. SANTACANA:** Objection, Your Honor. We've objected  
17 to the designation of this interrogatory response as  
18 incomplete. There's more to this.

19       **THE COURT:** Well, why don't you put up the entire  
20 response.

21 **BY MR. MAO:**

22 **Q.** Go ahead.

23 **A.** Sure. A preliminary step before the consent check occurs  
24 is data duplication.

25 **Q.** Okay.

1 A. And the data referred to there is that packet full of  
2 event data and identifiers.

3 Q. Can you explain the data duplication process here?

4 A. Yes. It's copying. The data is copied. A single copy of  
5 the data packet received from a user's mobile device is made.  
6 So one copy is made. There's an original and now there's a  
7 copy.

8 Q. Do you have any understanding as to why Google decided to  
9 make these copies before consent check is actually done?

10 A. I mean, my inference is that it's -- it's done -- they're  
11 creating a copy because that just helps them do what they're  
12 trying to do.

13 Q. Okay. Dr. Hochman, are there other Google Firebase  
14 products that actually checks for consent before the data is  
15 actually sent?

16 A. Could I just add to the prior answer?

17 Q. Sure. Please.

18 A. So, actually, the next sentence is a little bit helpful.

19 [As read]:

20 "This is done to facilitate the eventual data  
21 logging" -- okay? -- "that respects user consent  
22 choices."

23 Q. Okay.

24 A. Yes.

25 Q. So going back to my question, is there -- are there any



1 Google Firebase products that checks for consent before it logs  
2 and transmits the data?

3 **A.** Yes.

4 **Q.** And what are those?

5 **A.** There's a product within Firebase. So Firebase is like a  
6 collection of products. It's a -- I said it was a collection  
7 of different things that it could do. So one of those things  
8 is called the App Indexing service.

9 **Q.** What exactly is the App Indexing service?

10 **A.** It's a service that allows a developer to put tags in  
11 their apps and then make those apps searchable from the search  
12 box on the Android phone so that when you search on your  
13 Android phone, you can get a result that's, like, within an  
14 app.

15 **Q.** And your understanding from Google's technical responses  
16 in this case is that that process is set up for App Indexing,  
17 but not for this app SDK -- sorry -- for this SDK?

18 **A.** That's right.

19 **Q.** Did you ever receive any responses as to why there's this  
20 type of difference?

21 **A.** No. I've received no explanation as for why the  
22 App Indexing service is checking for consent on the device and  
23 the other S- -- the other services are not checking for consent  
24 before the data is taken off the device.

25 **MR. MAO:** So going back to the prior chart. Yes.

1 **BY MR. MAO:**

2 **Q.** So looking here at this data bundle, when you said that a  
3 copy is made, are there other copies that are made in addition  
4 to the data bundle?

5 **A.** Yes.

6 **Q.** Can you explain that, how that gets further copied?

7 **A.** Sure. Google, after they've processed the data and the  
8 data ends up in some logs, the data is then copied from one log  
9 often into another log and then into many other places  
10 potentially.

11 **Q.** Dr. Hochman, at any part of this process, is there any  
12 type of data aggregation as opposed to just collecting of event  
13 data?

14 **A.** So far, no. I -- there's no aggregation going on here.

15 **Q.** And this event data collection, is that done for every  
16 event that happens on every app for every device which has  
17 these SDKs?

18 **A.** Yes.

19 **MR. MAO:** Your Honor, I think the issue now is going  
20 to be that I'd like to put in plaintiffs' data.

21 Are there any objections to that from the slides on which  
22 we do have?

23 **THE COURT:** Well, I don't -- sort of a generalized "Do  
24 you have any problem with this?" is not going to work.

25 **MR. MAO:** Okay.

## HOCHMAN - DIRECT / MAO

1           **THE COURT:** If you have something specific to  
2 propose --

3           **MR. MAO:** Sure.

4           **THE COURT:** -- propose it, and then I'll see if  
5 they've got a problem.

6           **MR. MAO:** Sure.

7 **BY MR. MAO:**

8 **Q.** Dr. Hochman, did you examine all of the representative  
9 plaintiffs' data which Google produced in response to discovery  
10 requests in this case?

11 **A.** Yes.

12 **Q.** The ones that -- also, did you do any tests?

13 **A.** Yes, we did tests.

14 **Q.** How did you perform tests in order to get data back?

15 **A.** Okay. So we did several different kinds of tests.

16 **Q.** Sure.

17 **A.** One kind of test is that we had some of our own devices  
18 and we went through a defined sequence of events: launch  
19 this app, close it, launch a different app, do something.  
20 You know, it was a sequence of steps that we recorded. And we  
21 did it the same way each time because what we were looking for  
22 is to see if there were differences in how these things were  
23 recorded when WAA and SWAA were on versus off versus, you know,  
24 different devices. So we were looking for differences.

25 **Q.** Dr. Hochman, what are you actually able to see by

1 examining plaintiffs' data?

2 **A.** I'm able to see all the event data that Google has taken  
3 from their devices and saved in Google's data repositories.

4 **Q.** Would it be helpful for me to put up some of the slides in  
5 order to show what kind of events are actually being collected  
6 by Google?

7 **A.** Yes.

8 **Q.** Okay. If you could put up the first slide.  
9 What does this show, Doctor?

10 **A.** This is an interaction between Pete Rodriguez --

11 **THE COURTROOM DEPUTY:** To the gallery?

12 **THE WITNESS:** -- and the Career -- he's using the  
13 Career Karma app.

14 **THE COURT:** Has this been admitted as an exhibit?

15 **MR. MAO:** This is, Your Honor. This is what we were  
16 trying to discuss because this is part of the bulk data that we  
17 were trying to admit. This is exactly why I was trying to  
18 resolve that beforehand.

19 **THE COURT:** Okay.

20 **MR. MAO:** Would you like to take a pause? I can,  
21 again, enumerate what these --

22 **THE COURT:** Let me just...

23 **MR. SANTACANA:** I don't object to the publication of  
24 this slide, Your Honor.

25 **THE COURT:** Very well. Go ahead and publish it.

1           **MR. MAO:** So just for the record, these are the  
2 following exhibit -- plaintiffs' exhibits from which this data  
3 is pulled from. Did you want me to have that for the record,  
4 Your Honor?

5           **THE COURT:** Well, what I'm unclear on is: Are these  
6 documents that have been admitted previously or are you seeking  
7 to admit them?

8           **MR. MAO:** I'm seeking to admit them, Your Honor.

9           **THE COURT:** You're seeking to admit them. And what  
10 numbers are we talking about?

11           **MR. MAO:** Sure. This is 442 --

12           **THE COURT:** Yes.

13           **MR. MAO:** -- 452, 453, 454, 455, 456, 459, 460, 461,  
14 462, 463, 464, 483, 489, 485, 486, 489, and 491.

15           **THE COURT:** Okay. And this is the source code  
16 material?

17           **MR. MAO:** No, Your Honor. This is plaintiffs' own  
18 data received back from Google in addition to test data.

19           **THE COURT:** Okay. Any objection?

20           **MR. SANTACANA:** Yes, Your Honor. I object on  
21 foundation and 403 grounds for the reasons we discussed this  
22 morning. The witness hasn't testified about these exhibits at  
23 all at this time.

24           **THE COURT:** Okay. So are you going to ask some  
25 foundational questions before we show this to the jury?

1           **MR. MAO:** Sure.

2           **THE COURT:** Although we've shown 453 to the jury and  
3 Mr. Santacana said he didn't have any objection to doing that.

4           But before we show any further of these that you've just  
5 recited, please establish a foundation.

6           **MR. MAO:** Sure.

7           **BY MR. MAO:**

8           **Q.** Dr. Hochman, I read a number of things into the exhibit.

9           But you had examined all of plaintiffs' data and your own  
10 testing data for the purposes of rendering your professional  
11 opinion; is that correct?

12          **A.** Yes, I did. I and the team, we reviewed all this data  
13 very carefully.

14          **Q.** And you are the one that had requested this data and the  
15 testing data in order for you to be able to assess your  
16 technical opinion; isn't that correct?

17          **A.** Yes.

18          **MR. MAO:** Are there still objections, Your Honor?

19          **THE COURT:** Was this created under your direction?

20          **THE WITNESS:** This data was actually sort of in the  
21 wild. This was just what the plaintiffs were doing as they  
22 went about their daily life using their apps. This was not  
23 staged. This is just natural data.

24          **THE COURT:** All right.

25          **MR. MAO:** And to be clear, Your Honor, this is

1 produced by Google and which they're objecting to.

2 **THE COURT:** I understand. Well, they're not objecting  
3 yet.

4 Go ahead.

5 **MR. SANTACANA:** Your Honor, as I said this morning, I  
6 don't think that sending this many exhibits of raw data to the  
7 jury without them having any idea what it is from this witness  
8 is appropriate. I think the witness should explain what it is  
9 first, not just that he has seen it before.

10 **THE COURT:** Well, okay. Why don't you ask that  
11 question and then we'll move on.

12 **MR. MAO:** Sure.

13 **BY MR. MAO:**

14 **Q.** Dr. Hochman, I realize this is a lot of data which Google  
15 collected and produced, but you examined it, did you not?

16 **A.** Yes.

17 **Q.** And you used it to consider and to evaluate how much data  
18 Google was actually collecting on us; isn't that correct?

19 **A.** Yes.

20 **Q.** And this screen which you see right there for PX453,  
21 that's simply a display of what the data actually looks like;  
22 isn't that correct?

23 **A.** Yes.

24 **Q.** And this is event-level data, isn't it, Dr. Hochman?

25 **A.** Yes. Yes, these are events.

1 Q. Okay. How detailed are those events?

2 A. They're extremely detailed and extremely voluminous.

3 Q. Can you show me, by looking at the slide, what type of  
4 information, for example, it's collecting?

5 A. This app was collecting Pete's first name.

6 MR. MAO: Can we move on to the next screen.

7 Also 453, Your Honor? Objections?

8 THE COURT: Just -- you don't have to solicit  
9 objections.

10 MR. MAO: I understand, Your Honor.

11 THE COURT: I'll take care of that. I've got my job;  
12 you've got yours.

13 MR. MAO: I understand. I'm just a little worked up.

14 THE COURT: So just ask questions.

15 MR. MAO: Sure. I'm a little worked up. I think this  
16 is pretty simple.

17 BY MR. MAO:

18 Q. Go ahead. What is this?

19 A. This is Mr. Rodriguez's last name.

20 Q. Next slide, please.

21 A. They got his email address also.

22 Q. After that, next slide.

23 A. And they've got his phone number.

24 Q. Is this event data or aggregate data, Doctor?

25 A. This is detailed event data.



1 Q. Okay. Move on to the next -- sorry -- the one after this.

2 And what is this, Doctor?

3 A. This is another example of an event that's been taken by  
4 Google.

5 Q. Okay. Can you tell me what exactly is happening in this  
6 event?

7 A. Yes. I can tell you a few things.

8 Okay. How about we start at the top, because there's a  
9 lot here.

10 Q. Sure.

11 A. There's a timestamp at the top, and then there's the  
12 device identifier. In this case, it's an ADID. Okay?

13 That's -- I think it's an ad ID. Anyway, it's for Android.

14 That's an identifier that identifies a specific Android phone.

15 There's just one phone in the world with that number on it.

16 Okay? So that's the identifier associated with this event, one  
17 of the identifiers.

18 I can also see in here that it looks like a first open  
19 event. You can see in the second line there, right in the  
20 middle of that, it says, "App first opened."

21 Then the advertiser use case is documented here. So this  
22 says that this event is being used for conversion tracking.  
23 It's also being used for remarketing.

24 Q. What is conversion tracking, Doctor?

25 A. Okay. So this will take a moment.

1 Conversion tracking is something that's very important to  
2 Google ads. It's what actually makes them quite unique from  
3 other kinds of advertising.

4 Google provides advertisers with a connection between the  
5 showing of an ad and the resulting event that the advertiser's  
6 hoping to achieve. So it could be someone shows an ad, someone  
7 shows another ad, and then you go there and make a purchase.  
8 That's a conversion when you make the purchase, maybe, for that  
9 advertiser.

10 It could also be that you sign up for a newsletter or it  
11 could be that you download their app and install it and launch  
12 it. Okay?

13 There are -- each advertiser can define different  
14 conversion events, and there's some code or a method that the  
15 advertiser can use -- a variety of methods they can use to  
16 trigger Google to record that conversion and then be able to  
17 tell you which of your ads led to that conversion.

18 And this is very important for advertisers to understand  
19 what adver- -- what the value is of their advertising and to --  
20 it's very important to Google because it helps them to sell  
21 more advertising.

22 **Q.** And this event data -- the last five screens that you had  
23 shown as selected, was this with WAA -- with WAA or SWAA on or  
24 WAA or SWAA off?

25 **A.** This is SWAA-off data.

1 Q. And this was naturally generated by one of the plaintiffs;  
2 isn't that correct?

3 A. Yes.

4 Q. What else was peculiar about this specific event, Doctor?

5 A. This event, I believe, showed up in the -- let's just take  
6 a look at what log it's in. Can we go back out?

7 So if I'm not mistaken, I think this one showed up in the  
8 UUAD log.

9 Q. Okay. And what is a UUAD log, Doctor?

10 A. It's the unified user app data.

11 Q. Just so I understand, is that in the pseudonymous logs or  
12 in the personal logs?

13 A. Well, to my mind, it's personal because -- I think Google  
14 might classify it as pseudonymous, but it's personal because  
15 it's user app data. It's for the user.

16 Q. Assuming that this is in the pseudonymous side of Google's  
17 logs, does the -- what does the label "unified user app data"  
18 actually suggest to you?

19 A. "Unified" means all of it together. "User" means it's  
20 data about users' app activity.

21 Q. So looking at this particular event -- and this is just  
22 one event; is that correct?

23 A. Just one.

24 Q. Okay. Looking at this particular event, Doctor, was  
25 Google able to reidentify the same user in a subsequent event?

1 A. Yes. User -- Google is able and is doing this for  
2 conversion tracking so that they can see the user who sees an  
3 ad is the same as the user who makes the purchase. That's  
4 critical for them to be able to connect those two together.

5 Q. What is your understanding -- sorry.

6 Did you consider Dr. Black, Google's expert's report?

7 A. Yes.

8 Q. What is your understanding from Dr. Black as to what UUAD  
9 was supposed to do when SWAA's off?

10 A. Dr. Black, I think, said that the SWAA-off data would not  
11 appear in UUAD.

12 Q. On the UUAD side when SWAA is off? Are you sure?

13 A. I think that's what he said, yeah.

14 Q. Okay. So does this event surprise you when SWAA is off?

15 A. Yes.

16 Q. If you don't mind, let's go back to the flow chart for  
17 Interrogatory Number 1.

18 So looking at this process, how much data did you receive  
19 for our plaintiffs?

20 A. We received 2 gigabytes of data for two plaintiffs over a  
21 period of two months.

22 Q. Okay. If their SWAA is off, looking at this process, were  
23 they still able to tell who the user was?

24 A. Absolutely.

25 Q. And how would they know that looking at this process,

1 Doctor?

2 **A.** There are tons of identifiers in -- attached to each  
3 event.

4 **Q.** And looking at the next process, consent checks, how does  
5 Google go about doing consent checks?

6 **A.** Well, Google knows exactly who the user is in order to do  
7 a consent check because they have to look up the position of  
8 the user's switches and those are associated with the user's  
9 Google ID.

10 **Q.** So this type of consent checking happens whether WAA is on  
11 or off? Are you sure?

12 **A.** Yes.

13 **Q.** And you verified this; is that correct?

14 **A.** Yes. I verified it by Google's own technical answers and  
15 by our own testing.

16 **Q.** Right. But my understanding also is that they didn't have  
17 to first send a bundle and duplicate before they checked for  
18 consent; is that correct?

19 **A.** No, they didn't need to do that because the App Indexing  
20 service demonstrates that they have the capability to check for  
21 consent on the device and stop the taking of data if there's no  
22 consent.

23 **Q.** And what was the basis for your opinion and understanding  
24 of how App Indexing worked?

25 **A.** It was Google's -- it was actually, I think, Mr. Monsees

1 gave some deposition testimony that informed us about that.

2 **Q.** Okay. Going back to plaintiffs' data for a moment, how  
3 much data was produced for the plaintiffs?

4 **A.** I said it was 2 gigabytes. And if we were to try to print  
5 that out, we calculated it, give or take, about a million  
6 pages. That's a stack of paper 30 stories high.

7 **Q.** That is part of the reason why there were so many exhibits  
8 that you wanted me to admit; isn't that correct?

9 **A.** Yeah, I guess so.

10 **Q.** Okay. But do you know whether or not that was all the  
11 data that was collected?

12 **A.** For those people? No. That was just the slice that  
13 Google gave us. But it looks like there's potentially much  
14 more data that Google has, or at least many copies of it.

15 **MR. MAO:** Can we put up Slide 14.

16 Oh, sorry. If you don't mind just going back, just for  
17 the purposes of the record -- I have a note here -- that UUAD  
18 slide. If you can go back to the UUAD slide. It had a number  
19 on that. It was Exhibit Number 443 -- or 442. I just want to  
20 make sure we have that for the record.

21 Okay. Sorry. For plaintiffs' data.

22 **BY MR. MAO:**

23 **Q.** What is your understanding, from Google's sworn responses  
24 back to you, as to whether or not they have produced all of  
25 plaintiffs' data?

1     **A.**    No.  They said they -- it was impractical for them to  
2     produce all of plaintiffs' data.

3             **MR. MAO:**  Can we put up that interrogatory.

4     **BY MR. MAO:**

5     **Q.**    Okay.  Can you read into the record the Interrogatory  
6     Number 14.

7     **A.**    Yes.

8             [As read]:

9             "Please identify every data source (including  
10            logs) that includes or during the class period  
11            included WAA-off data.  For each such data source,  
12            please include a list of field names and  
13            descriptions, the retention period, and how such data  
14            sources are used."

15    **Q.**    And what was their response that you selected, Doctor?

16    **A.**    So it's -- Google's response was [as read]:

17             "... it is not practical or relevant to account  
18            for every single potential data source (including  
19            logs) that may contain such data because there are  
20            various downstream users of the pseudonymous data  
21            described in response to Plaintiff's Interrogatory  
22            Number 1."

23             **MR. SANTACANA:**  Your Honor, I object.  We  
24     counterdesignated the full paragraph.  If it's going to be read  
25     into the record, it should all be read into the record.

1           **THE COURT:** Let me see the rest of the --

2           **MR. SANTACANA:** This is the full paragraph on the  
3 screen here.

4           **THE COURT:** Well, so you're -- the only part that  
5 hasn't been read into the record is the last sentence?

6           **MR. SANTACANA:** No. He hasn't read above or below the  
7 highlight.

8           **THE COURT:** Well, you can ask him, then, on -- when  
9 you cross-examine.

10          **MR. SANTACANA:** Okay. I will.

11 **BY MR. MAO:**

12 **Q.** They didn't produce all of your data, did they?

13 **A.** Oh, no.

14 **Q.** Do you have an idea whether or not this is happening to  
15 the entire class?

16 **A.** Yes. This is happening to the entire class because the  
17 system, it's systemic. It's processing these events the same  
18 way for everybody.

19 **Q.** Just based on the data that's been produced for the  
20 plaintiffs, the limited data that you identified, how much data  
21 are we actually talking about in terms of what they've  
22 collected on the class, in your estimate?

23 **A.** Just doing some thumbnail math, there's 98 million  
24 plaintiffs, 98 months. They have 174 million devices because  
25 some people have more than one device. If you multiply that



1 all out, we get 4.5 quadrillion pages. That's a big stack of  
2 paper. If you start stacking it up, it'll go all the way to  
3 the sun from the earth three times.

4 **Q.** Does the event data also include location data?

5 **A.** Yes.

6 **Q.** So with things like location, your background, and also  
7 the various IDs that Google has, is Google able to reidentify  
8 the user?

9 **A.** Absolutely.

10 **Q.** I want to just go back to this concept of conversions  
11 really fast before I go on to the next section.

12 Why is conversions important for Google's business?

13 **A.** Conversions are how Google justifies value to the  
14 advertiser. It's what gives the advertiser the incentive to  
15 spend more money.

16 Not only that, some of Google's advertising products are  
17 actually charged per conversion. So an advertiser can go out  
18 and buy an app promo ad. If they want to stimulate people to  
19 download and use their app, they can place ads and they can pay  
20 Google a bounty every time someone sees the ad and responds to  
21 it and downloads and launches the app.

22 **Q.** What is the difference between an app promo ad and Google  
23 Mobile Ads? It might help the jurors.

24 **A.** Sure. App promo ad is one kind of ad. And also the  
25 app promo ads tend to be priced -- because they're priced often

1 per conversion, they tend to be -- that price is much higher  
2 than the price of just buying someone to view or click your ad,  
3 because you're buying a result.

4 **Q.** Is a price per conversion different than other types of  
5 prices which Google might charge advertisers?

6 **A.** Yes. It could be -- you know, it could be a thousand  
7 times more than the price of just merely showing someone an ad  
8 because you're paying for a result. If you're advertising,  
9 sometimes you have to show your ad thousands and thousands of  
10 times to get a result. But with a conversion, you just pay  
11 when someone -- when you've gotten the result.

12 **Q.** And what type of ad events are more valuable to Google and  
13 its advertisers? Serving the ad or actually getting a result?

14 **A.** The advertisers are focused -- having worked with many  
15 advertisers over a couple decades, my experience is that the  
16 advertisers are very focused on results.

17 **Q.** In order for you to be able to track a conversion, do you  
18 need more than one data point?

19 **A.** You do.

20 **Q.** What kind of data points do you need?

21 **A.** Well, there's not only conversion; there's also  
22 attribution.

23 **Q.** Okay.

24 **A.** I'll have to digress a little to explain that.

25 Google not only wants to tell advertisers that this ad led

1 to this sale; they want to be about able to show: Look,  
2 there's a whole sequence of ads. View-through conversions is  
3 what they call them. But they want to be able to attribute  
4 value to all the different interactions that person has before  
5 they make a purchase, for example. Okay?

6 The path to the purchase is often not a straight line.  
7 It's like a pretzel. Right? The person does some searching  
8 online. They might do something on their phone. They might  
9 talk about it with someone else. They might go do another  
10 search. It could be -- they could be wending around for a  
11 while, especially for a big-ticket purchase.

12 And the advertiser wants to be able to influence them at  
13 the various stages -- okay? -- at the point where they're  
14 considering, where they're trying to make a decision, where  
15 they're gathering more information.

16 So Google wants to be able to present information and data  
17 about that whole consumer journey. In order to do that, they  
18 need to be able to connect the dots. They need to be able to  
19 connect this ad to this ad to this ad, finally to the purchase  
20 over here.

21 **Q.** Is there any dispute in this case that Google uses  
22 sWAA-off data for conversions?

23 **A.** No.

24 **MR. MAO:** I want to just move on to -- if you don't  
25 mind putting up Exhibit Number 72.

1 Your Honor, this has not yet been moved into the exhibit.  
2 I've conferred with counsel on the other side, and they have no  
3 objections.

4 **THE COURT:** All right. So is that correct?

5 **MR. SANTACANA:** That is true.

6 **THE COURT:** All right. 72 will be admitted.

7 (Trial Exhibit PX72 received in evidence.)

8 **BY MR. MAO:**

9 **Q.** I only want to focus on one thing on this privacy policy.  
10 I'm sure they've seen it a lot. I just want to look at the  
11 definition of "personal information."

12 **A.** Yes.

13 **Q.** Did you consider this statement for the purposes of your  
14 professional opinion?

15 **A.** Yes.

16 **Q.** Okay. So for the purposes of determining what is a  
17 personal ID or personal identifier or personal information in  
18 this case -- okay? -- do you agree with Google's definition of  
19 "personal information" as the way they've interpreted it?

20 **A.** Well --

21 **MR. SANTACANA:** Objection, Your Honor. This witness  
22 explained any opinions on what does or does not constitute  
23 personally identifiable information.

24 **MR. MAO:** Your Honor, I just want to talk about IDs.

25 **THE COURT:** Well, you're asking if he's agreeing with

## HOCHMAN - DIRECT / MAO

1 somebody's definition of --

2 **MR. MAO:** Sure.

3 **THE COURT:** So why don't you try something different.

4 **MR. MAO:** It's a poor question, I admit.

5 **BY MR. MAO:**

6 **Q.** Okay. Dr. Hochman, is my understanding correct that  
7 Google believes that only the GAIA ID is personally  
8 identifying?

9 **A.** Yes. I think among their identifiers, I think that -- I'm  
10 sorry. Okay.

11 **Q.** I understand.

12 **A.** Can I just read this for a second?

13 **Q.** Sure. Go ahead.

14 **A.** Let me just read it so everyone hears it.

15 [As read]:

16 "Personal information. This is information that  
17 you provide to us which personally identifies you,  
18 such as your name, email address, or billing  
19 information, or other data that can be reasonably  
20 linked to such information by Google, such as  
21 information we associate with your Google Account."

22 And I was jumping the gun a little bit there because I was  
23 just thinking about identifiers, but there's all kinds of  
24 information here that Google's definition would encompass.

25 **Q.** Right. So you understand that Google says that email

1 addresses are personal information?

2 **A.** Yes.

3 **Q.** Are email addresses also pseudonyms?

4 **A.** Yes, they are.

5 **Q.** When you look at an email address, can you tell actually  
6 who that belongs to?

7 **A.** You might be able to.

8 **Q.** A device, a device ID, would you be able to tell who that  
9 actually belongs to?

10 **A.** I couldn't because they're really long and I wouldn't be  
11 able to memorize one.

12 **Q.** But let me ask you this: What's more personal to you?  
13 Your email address or your personal -- or your device ID?

14 **A.** I think they're both personal because they relate -- they  
15 point back to me, exactly to me.

16 **Q.** Right. So in terms of the IDs that Google use to measure  
17 conversions, are those IDs personal information --

18 **MR. SANTACANA:** Objection, Your Honor.

19 **BY MR. MAO:**

20 **Q.** -- on a technical level, just looking at the technical  
21 definition they provided here?

22 **MR. SANTACANA:** Your Honor, I object. He clearly  
23 disclaimed any opinion in his deposition --

24 **THE COURT:** He's not an expert on that issue, so don't  
25 ask him.

1           **MR. MAO:** Sure.

2           Do you mind putting up the -- let's put up Google's  
3 expert's own list of unique IDs.

4           I presume no objection there; right? Your slides.

5           **BY MR. MAO:**

6           **Q.** Okay. Let's go. Unique IDs. Who do you know  
7 Dr. Jonathan -- Jon Black to be?

8           **A.** He is the rebuttal expert that Google hired in this case.

9           **Q.** Okay. Dr. Black is saying on this slide here, personal  
10 identifiers is on the left-hand side, pseudonymous identifiers  
11 on the right-hand side. Do you agree, Doctor?

12          **A.** No.

13          **MR. SANTACANA:** I object, Your Honor. He disclaimed  
14 any opinion on whether any data in this case --

15          **THE COURT:** Sustained. Sustained. That's not what  
16 he's disclosed to testify about.

17          **MR. MAO:** But these are the IDs, Your Honor.

18          **THE COURT:** Well, what are you asking the question?  
19 You're just putting this up and saying, "These are the IDs."  
20 What's the question to this witness?

21          **MR. MAO:** Sure.

22          **BY MR. MAO:**

23          **Q.** Are advertising IDs personal identifiers?

24          **MR. SANTACANA:** I object, Your Honor.

25          **THE COURT:** Sustained. Sustained. He's not

1     testifying about what personal identifiers are. You know that.  
2     Move to another area.

3             **MR. MAO:** May I ask if personal IDs -- if advertising  
4     IDs ties to a device?

5             **THE COURT:** You may ask that question.

6     **BY MR. MAO:**

7     **Q.** Okay. Do advertising IDs tie to a device?

8     **A.** Yes, they do.

9     **Q.** Do app instance IDs tie to a device?

10    **A.** Yes, they do.

11    **Q.** Do they tie any more to a device than the GAIA ID?

12    **A.** No. They all tie to a device.

13    **Q.** And Google uses all of these IDs in order to identify  
14    things for the purposes of conversions; isn't that correct?

15    **A.** Yes.

16    **Q.** Okay. Let's move on to the next opinion.

17             Dr. Hochman, I understand that you measured a number of  
18    impacts to the users; isn't that correct?

19    **A.** Yes.

20             **MR. MAO:** Can we put up the My Activity screen? The  
21    My Activity screen, please. Sorry. The next slide.

22    **BY MR. MAO:**

23    **Q.** Okay. What is the difference between what Google shows  
24    users when sWAA is on versus when sWAA is off?

25             **MR. MAO:** Can we stop running that?



1 Thanks.

2 **THE WITNESS:** When sWAA is off, the My Activity screen  
3 shows nothing.

4 **BY MR. MAO:**

5 **Q.** What about when sWAA is on?

6 **A.** When sWAA is on, it shows you sort of a portion or a  
7 summary of some of your activity that Google has taken and  
8 saved.

9 **Q.** So do users have more transparency or less transparency in  
10 terms of the type of data that's been collected on them with  
11 sWAA on or with sWAA off?

12 **A.** With sWAA off, they have no transparency.

13 **Q.** With sWAA on, are they able to see all the data that's  
14 been saved on them?

15 **A.** They can see some of the data, but not all of the data.

16 **Q.** Okay. And why is it they are not able to see all of their  
17 data?

18 **A.** Well, Google only chooses to show a selection of the data,  
19 but also, the data is enormously voluminous.

20 **Q.** So you have previously indicated that the only data --  
21 sorry -- that the data is duplicated when it's initially  
22 collected. Do you remember that?

23 **A.** Yes.

24 **Q.** What type of data is actually shown in My Activity?

25 **A.** The data that's shown in My Activity is the WAA- and

1 sWAA-on data.

2 Q. Are there other data that's saved by Google that's not  
3 shown in My Activity?

4 A. Yes. There's other WAA- and sWAA-on data that's not  
5 shown, but there's also WAA- and sWAA-off data that Google has  
6 but doesn't show.

7 Q. Where does the data that does not get shown on My Activity  
8 get stored?

9 A. Well, I've called it the shadow account. Okay? But  
10 Google calls it -- has a variety of data storage and names for  
11 those data stores. One of those is Base View. One of those is  
12 UUAD.

13 Q. In those type of data stores -- what exactly is a data  
14 store, actually?

15 A. It's just a collection of this activity data. It's just a  
16 huge collection of these individual events.

17 Q. By the way, that data that's showing on there, what's  
18 saved on Google computers, is that aggregated data or is that  
19 event-level data?

20 A. That is individual event-level data.

21 Q. Okay. So when we're talking about this thing that you've  
22 termed the shadow account, what is actually in there?

23 A. Everything. Everything that they've taken and that they  
24 copy in there until they choose to get rid of it.

25 Q. Is that account broader or more narrow than what's

1 actually shown in My Activity?

2 **A.** It's broader than what's shown in My Activity.

3 **Q.** Why is it broader?

4 **A.** There's stuff in there that's not shown in My Activity.

5 **Q.** Such as?

6 **A.** My Activity, it shows you sort of at a high level some of  
7 your things, but it doesn't show you all of the fields that  
8 Google has collected. They're collecting very, very detailed  
9 data. And they don't show you every single action in the app.  
10 They just show you some of the actions in an app.

11 **Q.** Is there currently any way that you are aware of for users  
12 to access their own SWAA-off activity?

13 **A.** No.

14 **Q.** Are you currently aware of any ways for users to be able  
15 to access all of their SWAA-on activity?

16 **A.** No.

17 **Q.** So whether SWAA is on or whether SWAA is off, users are  
18 not able to access all of their data?

19 **A.** Correct.

20 **Q.** Is that because of any particular architecture, the way  
21 data is designed -- or, sorry -- the way the data stores are  
22 designed?

23 **A.** You know, Google could make it available. They just  
24 don't.

25 **Q.** In terms of these data stores you speak of, whether SWAA

1 is on or off, is the data which Google has identified as  
2 personal and pseudonymous, are they stored together or are they  
3 stored separately?

4 **A.** Sometimes -- there's some places where they're stored  
5 separately, and there's some places where they're stored  
6 together.

7 **Q.** Okay. When they are stored together, do you know the  
8 places -- all the places in which they are stored?

9 **A.** I know some of them, but Google has said that they have  
10 other places this data goes that they can't even enumerate,  
11 it's so many.

12 **Q.** And you have asked for that in this litigation, for the  
13 places -- for all the places in which that data is stored?

14 **MR. SANTACANA:** Objection, Your Honor. 403. It's a  
15 discovery dispute.

16 **THE COURT:** Sustained.

17 **BY MR. MAO:**

18 **Q.** You're not aware of all the places in which all the data  
19 is stored; isn't that correct?

20 **A.** That's correct.

21 **Q.** Whether for SWAA-on or SWAA-off users; isn't that correct?

22 **A.** Correct.

23 **Q.** And you're currently not aware of any way for any of those  
24 users to be able to access all of their data; isn't that  
25 correct?

1     **A.**    That's correct.

2     **Q.**    Are you aware of any way for all of those users to be able  
3   to control all the data which Google has stored on them for  
4   sWAA-off activity?

5     **A.**    No.

6     **Q.**    If I can move on to the "What Google Does When sWAA Is  
7   Off" slide.

8         Did you design and write this slide, Doctor?

9     **A.**    I did.

10    **Q.**    Okay. Can you explain to me what you are trying to show  
11   here?

12    **A.**    This is a maybe more user-friendly schematic.

13         So there's the phone and there's an app, and Firebase is  
14   in that app or Google Mobile Ads is in that app or maybe both  
15   of them are in that app.

16         And those are some of the things that are being taken by  
17   Google: the user information, like age, gender, and  
18   interest; the device information, like the operating system,  
19   the version of the operating system; what type of device it is;  
20   who the manufacturer is; there's app usage data -- that's that  
21   event data -- there's a timestamp; and then there's also  
22   location data.

23         And all that stuff is being taken by Google. It goes to  
24   Google's server, which then is copying and further processing  
25   the data. And that data ends up in a bunch of logs in Google's

1 data warehouse and it gets stored by Google, and it's used to  
2 drive their ad revenue, to support their advertising system, to  
3 do things like conversion tracking and attribution. It's also  
4 used for product development and improvement. They analyze the  
5 data and use it to help develop their products.

6 And Google uses the data to train AI because Google's  
7 advertising system is -- heavily utilizes machine learning in  
8 order to be able to do predictions about which ads a person is  
9 going to respond to, in order to do personalization, in order  
10 to advise advertisers how to bid as efficiently as possible.  
11 So they have automated bidding that's driven by machine  
12 learning. So all this data feeds into that AI use.

13 **Q.** In terms of this advertising revenue corner that you're  
14 talking about, can Google link device ID and other SWAA-off  
15 data to, for example, a user's email address?

16 **A.** Could they tie it to a user's email address?

17 **Q.** Yes.

18 **A.** They could.

19 **Q.** There is nothing technically preventing Google from  
20 linking or joining any of these different IDs, is there, on a  
21 technical level?

22 **A.** No, there's no technical thing that stops Google from  
23 doing it.

24 **Q.** Have you seen any documents, disclosures, or  
25 representations from Google to any of its users that it won't

1 relink any of this?

2 **MR. SANTACANA:** Objection, Your Honor.

3 **THE COURT:** Overruled.

4 **THE WITNESS:** I haven't seen any such document.

5 **BY MR. MAO:**

6 **Q.** And there's no technical barriers to all of this data  
7 being relinked, isn't it?

8 **A.** That's correct.

9 **Q.** Okay. Looking at the ad revenue component here for a  
10 moment, are there any technical barriers for the purposes of  
11 that part of the business?

12 **A.** One second. I'm going to ask you to reask the question  
13 because this is important --

14 **Q.** Sure.

15 **A.** -- and I want to be sure it's got all my attention.

16 Could -- just could you ask it again?

17 **Q.** Go ahead. Just...

18 For ad revenue, is there any technical barriers for Google  
19 to not be able to collect sWAA-off data?

20 **A.** Is there any technical barrier for Google to not be  
21 able -- in other words -- I don't think so.

22 **Q.** For all of Google's business, are they able to switch on  
23 the technology which they use for App Indexing, for example,  
24 where they actually check for consent before they collect the  
25 data?

1     **A.**     Yeah. They could apply that technology to the other SDKs  
2     and have them work the same way.

3     **Q.**     Does Google incur any noticeable incremental costs from  
4     the taking, copying, and using of WAA-off and sWAA-off data?

5             **MR. SANTACANA:** Objection, Your Honor. There's no  
6     disclosed opinion on the costs.

7             **MR. MAO:** I'm talking about technical costs.

8             **THE COURT:** I'll allow it. Overruled.

9             **THE WITNESS:** Yes. I've given the opinion that  
10     Google's data processing operation is so massive that even  
11     though this sWAA-off data is quite voluminous, it's still just  
12     a little piece of their total data operations. And, therefore,  
13     they've got all these data centers and all the fiber, it's all  
14     in place so -- and it's not -- it doesn't impose an additional  
15     cost on them. They've already got it.

16     **BY MR. MAO:**

17     **Q.**     In sworn statements, Google has admitted that it does join  
18     different pseudonymous records for the purposes of ad  
19     interactions and ad conversions; isn't that correct?

20     **A.**     Yes, they have.

21     **Q.**     Okay. Can we put up the Supplemental Response to  
22     Interrogatory Number 15?

23             Did you review and look at this interrogatory response for  
24     the purposes of rendering your professional opinion?

25     **A.**     I did.



1 Q. And does this statement tell us the pseudonymous records  
2 already get joined for the purposes of ad revenue?

3 A. Yes.

4 MR. SANTACANA: Your Honor, I object on two grounds  
5 and would like to be heard at sidebar. We have a completeness  
6 and a 403 objection.

7 What's being displayed --

8 THE COURT: Well, completeness, when you get up and  
9 you have your opportunity, you can point out other areas of  
10 these responses. So the completeness doesn't work.

11 What's the -- you have a 403 objection?

12 MR. SANTACANA: Yes, Your Honor. They're highlighting  
13 a response that was supplemented with more information in order  
14 to mislead the jury.

15 THE COURT: Well, don't characterize what they're  
16 doing.

17 But you're going to have an opportunity -- that's what  
18 your time is for.

19 So, overruled. Go ahead.

20 MR. SANTACANA: I'll do it. Thank you.

21 MR. MAO: Move off that. Back to the previous slide.

22 BY MR. MAO:

23 Q. When you said that Google uses SWAA-off data for product  
24 development, what do you mean by that? Can you explain that a  
25 little bit more?

1     **A.**    Yes.  The sWAA-off data goes into a big data lake with all  
2     kinds of data.

3     **Q.**    Okay.  I guess we'll put up the slide on the lake.

4     **A.**    Yeah.  This is a good way to visualize this.

5     **Q.**    I know you like this slide.  Please.

6     **A.**    Okay.  I designed this slide.  I like it.

7           The on data -- sWAA-on data and the sWAA-off data, it all  
8     ends up in the same place.  It may be processed a little bit  
9     differently, but the data is there.

10          And all that data, that massive data is the thing that  
11     gives Google tremendous abilities.  That data is helping them  
12     to understand what's going on, to make their products better  
13     and better, and to enable them to make more and more money.

14           **MR. MAO:**  Go back to the last slide.

15     **BY MR. MAO:**

16     **Q.**    Are one of those products AI?

17     **A.**    Yes.

18     **Q.**    And what do you mean by that?

19     **A.**    Google has, for many years, had machine learning as part  
20     of its systems.  And the AI in, especially machine learning,  
21     needs data to make predictions.  So it's almost like fuel for a  
22     car.  Data is the fuel for AI.  You need to have as much data  
23     as possible to build really good AI, and being able to make  
24     accurate predictions helps.

25          So, for example, when you run a search on Google or you do

1 something, whatever it is you're doing on a Google product, the  
2 better they are able to predict what you want, the more  
3 effective they can make their product.

4 **MR. MAO:** I want to go on to the last slide, if  
5 possible.

6 Actually, before I go there, can we go back to the last  
7 slide.

8 **BY MR. MAO:**

9 **Q.** I had a question for you, Dr. Hochman. These benefits --  
10 ad revenue, Google product development, train AI -- is this for  
11 the sake and the benefit of app developers or somebody else?

12 **A.** This is for the benefit of Google.

13 **Q.** Anybody else?

14 **A.** Google is benefiting from this. Google gets the ad  
15 revenue, they get the value of their products, and they -- it's  
16 their AI.

17 **MR. MAO:** Next slide, please.

18 Oh, sorry. The last slide, Google trackers.

19 I apologize. If we could go back to Supplemental  
20 Response, Interrogatory Number 15.

21 **BY MR. MAO:**

22 **Q.** Okay. Could you just read into the record the last two  
23 lines there?

24 **A.** Sure.

25 [As read]:

1 "DeviceID-keyed advertising interactions with an  
2 advertiser, such as views and clicks of the  
3 advertiser's ads, are joined to conversions recorded  
4 in that advertiser's app" --

5 **Q.** Can you break that down for me? What does that mean?

6 **MR. DAVID BOIES:** Finish the sentence.

7 **THE WITNESS:** Oh, sorry.

8 [As read]:

9 -- "using Firebase (or other third-party  
10 conversion tracking products or services)."

11 I'm sorry. I got thrown off by the horizontal line.

12 **BY MR. MAO:**

13 **Q.** Last slide. What did you intend to show with this slide?

14 **A.** I'm trying to show something that Google told us in their  
15 answer to our technical questions, which is that the data  
16 collection by Google, when they're taking data from the user's  
17 phone, it uses up the phone's bandwidth. Some people are on  
18 metered plans. It also uses energy because taking the data  
19 requires the phone to make a radio transmission, and this  
20 reduces the power in the battery. So it means that the phone  
21 will die sooner.

22 Now, it might seem like one ad interaction, well -- one  
23 app interaction; well, maybe that's not so much. But,  
24 actually, if you think about how much data -- each app event is  
25 like 14 pages of data. And when there are dozens of them

1 happening when you use an app, it becomes a considerable amount  
2 of power and bandwidth.

3 And when the battery goes dead sooner, not only is your  
4 phone dead at the end of the day, your phone only has so many  
5 recharge cycles. Okay? Like, for example, an iPhone is  
6 rated as good for 500 recharge cycles. After that, the battery  
7 is going to be -- fall below 80 percent capacity, and that's  
8 when people start to say, "This phone is getting kind of old  
9 and not working so good," and they might go out and buy a new  
10 phone.

11 So -- so these Google software development kits that are  
12 taking people's app activity data are imposing a real cost on  
13 people. They're imposing a cost in terms of bandwidth and in  
14 terms of wearing out the phone and making the phone not as  
15 good.

16 **MR. MAO:** Thank you.

17 Before we end, Judge, I just want to make sure that the  
18 bulk admissions actually gets into the record.

19 **THE COURT:** Right. Well, why don't we take a break.  
20 I want to talk about that with you for a moment.

21 **MR. MAO:** Sure.

22 **THE COURT:** And this is a good time for our break  
23 anyway.

24 Members of the jury, remember my admonitions not to  
25 discuss this amongst yourselves.

1 We'll resume at 10:15.

2 (Proceedings were heard out of the presence of the jury.)

3 **THE COURT:** You can step down and we'll call you back.

4 Okay. We're out of the presence of the jury.

5 So what is your request?

6 **MR. MAO:** So I'd like to admit that to bulk evidence,  
7 Your Honor.

8 And let me just cover the procedural history on this a  
9 little bit, Your Honor.

10 This dispute first started with the 1006 demonstratives.  
11 We simply wanted to be able to demonstrate how much data is  
12 collected on each of the plaintiffs. I think it's relevant.  
13 Okay?

14 **THE COURT:** Well, you've established that through his  
15 testimony.

16 **MR. MAO:** Yes. But where we pulled it from, they've  
17 objected to everything. How am I --

18 **THE COURT:** While this was all going on --

19 **MR. MAO:** Yes.

20 **THE COURT:** -- I was refreshing my memory about 703,  
21 Rule 703.

22 **MR. MAO:** Yes.

23 **THE COURT:** And 703 says [as read]:

24 "An expert may base an opinion on facts or data  
25 in the case that the expert has been aware of or

1 personally observed. If experts in the particular  
2 field would reasonably rely on those kind of facts or  
3 data in forming an opinion on the subject, they need  
4 not be admissible for the opinion to be admitted.

5 But if the facts or data would otherwise be  
6 inadmissible, the proponent of the opinion may  
7 disclose them to the jury only if their probative  
8 value in helping the jury evaluate the opinion  
9 substantially outweighs their prejudicial effect."

10 Now, maybe this bulk of material might be otherwise  
11 admissible. It's produced by Google. But I am concerned,  
12 under 403, that just dumping an enormous amount of material  
13 into the record -- you've made your points. They're not going  
14 to go look at the source code. So what is the value to the  
15 jury of having all this in there?

16 And there is always the danger that they may be looking at  
17 it without a lot of guidance, and they will come to conclusions  
18 that were not appropriate because -- and there's always that  
19 danger. If you just dump material into the record, even if  
20 it's otherwise admissible, there is a 403 problem.

21 So why isn't this -- I'm not quite sure why you even want  
22 it because you've made your points, and I don't think there's  
23 much value in the jury having all this code.

24 So that's a question for you, Mr. Mao.

25 **MR. MAO:** Okay.

1           **THE COURT:** Or for Mr. Boies. I don't know.

2           **MR. MAO:** Just real quick, in terms of -- so we  
3 understand what's being admitted, it's actually just on a zip  
4 drive, Your Honor. I'm not trying --

5           **MR. SANTACANA:** I assume it's not 30 stories tall.

6           **MR. MAO:** It's -- well, I mean, it depends on whether  
7 we're talking literally -- you know, literally, or are we  
8 talking about, like, how can we reduce that?

9           We reduced it just to a zip drive, Your Honor. We just  
10 want it for --

11           **THE COURT:** Well, you're saying, "Oh, it's no problem  
12 because it's such a small little item going back there."

13           **MR. DAVID BOIES:** No, no, no.

14           **THE COURT:** That's not the point.

15           **MR. DAVID BOIES:** No, that's not the point.

16           **THE COURT:** Even I understand that we're talking about  
17 great voluminous material. Why do they need it?

18           **MR. DAVID BOIES:** Your Honor, let us take a look at  
19 the exhibits and see if we can cut them back.

20           **THE COURT:** Well, even cutting them back -- what I'd  
21 ask you, Mr. Boies, is, perhaps look at it and then explain to  
22 me why its probative value outweighs what I think is a  
23 legitimate concern, that the jury is going to be hunting around  
24 in voluminous material and perhaps making something out of it  
25 that they shouldn't be.



1 And that is, I assume, more or less your 403 objection.

2 **MR. SANTACANA:** I think you articulated it better than  
3 I could, Your Honor.

4 **THE COURT:** Well, you're being nice to me.

5 (Laughter.)

6 **THE COURT:** Thank you.

7 **MR. SANTACANA:** That's not against the rules --

8 **THE COURT:** I love that.

9 **MR. SANTACANA:** -- is it?

10 **THE COURT:** So be prepared to tell me why it advances  
11 the ball because, frankly, I think the points you want to make,  
12 you have made with the witness. And I'm not sure even -- it's  
13 not for me to say, but I don't quite even know why you want it.

14 But think about it and tell me. I'm going to reserve  
15 admission or not admission now. You can renew it. You've made  
16 your request at the appropriate time. But we don't need to  
17 decide that right now unless you think it needs to be decided  
18 for purposes of your cross-examination.

19 **MR. SANTACANA:** I hate to say it, but Exhibit 442 is  
20 one that he did explain to the jury a little bit about. The  
21 other exhibits on that list are actually completely different  
22 type of log. So it is possible that our objection would  
23 involve, depending on Your Honor's position, that he should  
24 also explain what those other pieces of data are if it's going  
25 to go to the jury room, because those logs look completely

1 different than what the jury saw during the testimony.

2 **THE COURT:** Well, how extensive would that  
3 explanation -- that examination be? I mean --

4 **MR. SANTACANA:** Similar to what they did with  
5 Exhibit 442.

6 **THE COURT:** I have no problem with them showing this  
7 material and even publishing it to the jury as it's being  
8 presented because I think under 702, 703, they could do that.

9 **MR. SANTACANA:** We agree.

10 **THE COURT:** So the only question is: Does it go back  
11 to the jury room or not?

12 **MR. SANTACANA:** And we object to that.

13 **THE COURT:** And you think you need to know that in  
14 order to decide how much in depth you're going to be with this  
15 witness?

16 **MR. SANTACANA:** Exactly. If there's a chance it's  
17 going to the jury room, then exhibits other than 442, which are  
18 formatted differently and look very different -- the  
19 30-story-high exhibits. 442 is pretty short -- we would need  
20 foundation on that.

21 **THE COURT:** Well, why don't you, during the break, you  
22 guys caucus about what exactly the plaintiffs want -- after  
23 you've thought about this, what you really want to ask to have  
24 admitted, and then you can assess, and then I'll see whether or  
25 not there's a real issue left.

1           **MR. DAVID BOIES:** We'll do that, Your Honor.

2           **THE COURT:** Okay.

3           **MR. DAVID BOIES:** Thank you.

4           **THE COURTROOM DEPUTY:** Court stands in recess.

5                       (Recess taken at 10:02 a.m.)

6                       (Proceedings resumed at 10:25 a.m.)

7           (Proceedings were heard out of the presence of the jury.)

8           **THE COURTROOM DEPUTY:** Please remain as you are.

9           Court will come to order.

10          **THE COURT:** Okay.

11          **MR. DAVID BOIES:** I think we have resolved 90 percent  
12          of it.

13          **THE COURT:** Okay.

14          **MR. DAVID BOIES:** There are four 106 summaries that we  
15          are going to introduce.

16          **MR. SANTACANA:** 1006.

17          **MR. DAVID BOIES:** Yes.

18          **MR. SANTACANA:** Summary exhibits.

19          **MR. DAVID BOIES:** Summary exhibits.

20               And then we're going to offer 442, which was one of the  
21          documents that was shown to the jury. All of that is without  
22          objection.

23               Then there is 453 that was shown to the jury. And the  
24          issue with respect to 453 is that what was shown to the jury  
25          was a certain number of pages of a document that has many,

1 many, many, many, many pages. And I think there's not a  
2 disagreement that we could have the pages shown, which are  
3 exemplars, to the jury, but they object to having the entire  
4 document in because of its volume.

5 Now, since this is something that's already been shown to  
6 the jury and we don't need more examination on it, what I would  
7 propose is that we try to work out some portion of that, we try  
8 to strip down the exhibit to a certain number of pages that are  
9 reasonable and have that be the exhibit, as opposed to the  
10 whole thing, and try to work that out among ourselves. If we  
11 can't, we'll come back to the Court.

12 **MR. SANTACANA:** That's a proposal I hadn't heard,  
13 Your Honor. And we're always happy to meet and confer with the  
14 other side. And if they don't want to put in more testimony on  
15 that exhibit, of course that, I think, would be at their risk.

16 But we're happy to talk to them about stripping that  
17 document down to something shorter than the 32 million lines it  
18 currently stands at.

19 **THE COURT:** Okay. Well, continue to discuss that. If  
20 you can come to an agreement, that would be preferable.  
21 Otherwise, when they come back in, what do you want to do?

22 Do you want to, Mr. Mao, move what's been agreed to, as I  
23 understand it, what Mr. Boies --

24 **MR. SANTACANA:** 442.

25 **THE COURT:** -- just recited?

## HOCHMAN - DIRECT / MAO

1           So you can just, at the beginning, before Mr. Santacana  
2 starts, you could just make the motion to admit that so the  
3 record is clear, and I will admit it.

4           **MR. MAO:** Okay.

5           **MR. DAVID BOIES:** Okay.

6           **MR. SANTACANA:** And their 1006 exhibits, they're going  
7 to lay some foundation and try and get them in. So they have a  
8 couple more exhibits they want to do on direct.

9           **MR. DAVID BOIES:** Right.

10          **THE COURT:** Oh, so he's going to come back up and  
11 you're still on direct with --

12          **MR. DAVID BOIES:** Yes.

13          **THE COURT:** -- Mr. --

14          **MR. DAVID BOIES:** And that's if you want us to lay the  
15 foundation for the 106, we will.

16          **THE COURT:** Okay.

17          Okay. So, Doctor, you can come back, take the stand.

18          Are we ready? Are you ready?

19          **MR. MAO:** I am, sir.

20          **THE COURT:** Okay.

21          (Proceedings were heard in the presence of the jury.)

22          **THE COURT:** The jury is present.

23          Mr. Mao, you may proceed.

24          **MR. MAO:** Yes, Your Honor.

25          Before we begin to wrap this up for the direct, I just

1 want to admit into the record Exhibit Number 442, which was  
2 discussed with the -- with the witness.

3 **THE COURT:** 442.

4 **MR. SANTACANA:** No objection, Your Honor.

5 **THE COURT:** 442 will be admitted.

6 (Trial Exhibit PX442 received in evidence.)

7 **MR. MAO:** And then, Your Honor, what I'm going to do  
8 is I'm just going to finish up this last slide, I'm going to  
9 deal with all the record stuff, and then I'm just going to have  
10 three concluding questions and that's it.

11 **THE COURT:** Okay.

12 **MR. MAO:** Okay?

13 Sorry, the last slide, please. Let's just finish this up.

14 **BY MR. MAO:**

15 **Q.** Okay. Sorry. There was a break.

16 I just want to make sure, going back to this last slide --  
17 okay? -- the sWAA-off data is collected directly from the  
18 user's devices; is that correct?

19 **A.** Correct.

20 **Q.** And that type of collection harms the devices how?

21 **A.** It's consuming the bandwidth, and it also is using up  
22 battery power.

23 **Q.** Because of the extra sWAA-off data that's being collected  
24 in the --

25 **A.** Right.

1 Q. -- actual state; is that correct?

2 A. The bandwidth usage and the battery power usage is  
3 proportional to how much data is being transmitted.

4 Q. Okay. So on the volume of data that's being transmitted,  
5 let's talk about the plaintiffs' data just for a moment. That  
6 way I can get some of the stuff admitted. Okay?

7 Did you prepare any summaries on the volume of data that  
8 was collected?

9 A. Yes, I did.

10 Q. Okay. So for the record, we are trying to admit some of  
11 these summaries on the volume of the two plaintiffs' data, and  
12 those are Exhibits -- Demonstrative Exhibits 489, 491, 492, and  
13 493 -- okay? -- on the volume for the two plaintiffs and, also,  
14 the apps from which they were collected from, the number of  
15 events. Okay?

16 Can you please explain to the judge and jury how you were  
17 involved in the preparation of those summaries?

18 A. Sure. So we received the data in a bulk form, and we  
19 filtered out all the sWAA-on data that might have been  
20 provided. So we were looking at just sWAA-off data.

21 We then sorted it and categorized it and made a summary  
22 that showed how many events were collected from each app and  
23 how many events were collected -- different events by different  
24 categories.

25 So let me take a look at this one. Yeah, this is

1 indicating the apps. The apps' names are kind of funny because  
2 it's like a website address, but you see the "com" comes first.  
3 So the app names, for whatever reason, they were, like,  
4 backwards to Web addresses. But these are all apps.

5 And this, by the way -- I'm just going to point this out  
6 because I see it. The total shouldn't be 10,000 here. That's  
7 a typo.

8 **THE COURT:** Pardon?

9 **A JUROR:** Shouldn't we be seeing the screen?

10 **THE COURT:** It hasn't yet been admitted, or has it  
11 been?

12 **MR. MAO:** It hasn't. We're getting it --

13 **THE COURT:** Yeah.

14 **MR. MAO:** -- to be admitted.

15 **THE COURT:** See, what's happening is the counsel is  
16 asking the questions that provide the basis for the counsel to  
17 then ask for it to be admitted. We'll hear from the other  
18 side, and then a decision will be made. And if I say "yes,"  
19 then you get to see it.

20 Go ahead, Mr. Mao.

21 **THE WITNESS:** Why don't you just show me each one  
22 quickly so I can see them all.

23 **BY MR. MAO:**

24 **Q.** Sure. Just to be clear, just how long of a period was  
25 this?



1     **A.**    This was over a two-month time period.

2     **Q.**    Okay.  So, go ahead.  Can you finish your description?

3     **A.**    Sure.  This report is for Plaintiff Harvey, non-Google app  
4   activity with SWAA off.  Okay.  And this is -- actually, it's  
5   very clearly stated:  October 15th, 2021, to December 20th,  
6   2021.  So it's two months and five days.  Okay?

7           And this is also broken down by the app -- which app, the  
8   number of records per app.

9     **Q.**    And, again, is this event data or is this aggregate data?

10    **A.**    This is event data.

11    **Q.**    Okay.

12    **A.**    It's a count of the event data.

13           **MR. MAO:**  Your Honor, I'd like to move in the exhibit,  
14   Exhibit PX489.

15           **MR. SANTACANA:**  No objection.

16           **THE COURT:**  489 will be admitted, and it may be  
17   published to the jury.

18           (Trial Exhibit PX489 received in evidence.)

19           **MR. MAO:**  If we can put up 491.

20           Sorry.  Can we show 489?

21           **THE COURT:**  Right.

22           **MR. MAO:**  Can we go back to 489 just so they can see  
23   it -- so the jurors can see it?

24    **BY MR. MAO:**

25    **Q.**    Just so I understand, Dr. Hochman, your understanding is

1 that this is a natural collection? This wasn't a test; right?  
2 This is their past data; is that correct?

3 **A.** Yeah, this is a natural -- well, I would call it a natural  
4 test. This is their natural activity that we then collected  
5 and analyzed.

6 **Q.** And, again, by the number of records, you mean the number  
7 of event records?

8 **A.** Correct.

9 **Q.** Okay. If we can go now on to 491.

10 Doctor, can you explain 491 so I can introduce it into  
11 evidence?

12 **A.** Yes. This is another summary. For whatever reason, when  
13 Google produced the data to us, it came in two files, so we --  
14 we tallied them separately.

15 **Q.** So did you prepare 491 as well?

16 **A.** Yes.

17 **Q.** Okay. And can you explain what exactly you did?

18 **A.** Yeah. It's the same thing I did with the other one. We  
19 filtered out any non- -- any SWAA-on activity. So we were  
20 looking at SWAA-off activity only, sorted it by app, and then  
21 took a count.

22 **MR. MAO:** Okay. I'd like to offer into exhibit  
23 Number 491, Your Honor.

24 **MR. SANTACANA:** No objection.

25 **THE COURT:** 491 will be admitted.

(Trial Exhibit PX491 received in evidence.)

**BY MR. MAO:**

**Q.** Okay. Can you explain to me, is this aggregated data or is this event-level data?

**A.** All right. This is event-level data. It's a count of the event-level data.

**Q.** And from what period to what period was this?

**A.** This is October 15th, 2021, to December 20th, 2021.

**Q.** Was this natural or was this test data?

**A.** It's the same as before. It's the natural activity.

**Q.** Okay. And was this with WAA on or WAA off?

**A.** This is with -- the sWAA is off, which means either WAA is off or sWAA is off.

**Q.** Okay. I'd like to introduce 492. Before we show it to the jury, just talk about the preparation.

Okay. So 492, were you involved in the preparation of this?

**A.** Yes.

**Q.** How did you go about preparing this?

**A.** The same as with the other ones. Filter out any irrelevant activity. This is -- and this is the sWAA-off data for Plaintiff Rodriguez between October 15th, 2021, and December 20th, 2021.

**Q.** Again, is this aggregate or event-level data?

**A.** This is event-level data. It's a count of the number of

1 events per app.

2 **MR. MAO:** I'd like to move -- sorry. Can I see what  
3 exhibit we're on?

4 **THE COURT:** 492.

5 **MR. MAO:** Okay. I'd like to move into exhibit  
6 Number 492.

7 **MR. SANTACANA:** No objection.

8 **THE COURT:** 492 will be admitted.

9 (Trial Exhibit PX492 received in evidence.)

10 **BY MR. MAO:**

11 **Q.** Okay. Can you explain to me what we have here for 492?

12 **A.** Yeah. This is the second list for Plaintiff Rodriguez.

13 As I said before, because the data was produced to us in  
14 two files, we just compiled two separate lists.

15 **Q.** And, again, this is event-level data for each of these  
16 different apps; is that correct?

17 **A.** Yes, this is event-level data. It's a count of the number  
18 of events that we have.

19 **Q.** So looking at Exhibit 492, which I think is shown to the  
20 jury now, can you give me a sense of how large is the volume  
21 generated by the records referenced in this exhibit?

22 **A.** In this exhibit -- well, let's scroll down to the bottom,  
23 and let me look at the total and see if it's accurate.

24 Yeah, it looks like there's 49,000 events that were in  
25 that record.

1 Q. And just exactly -- what exactly is that kind of volume  
2 we're talking about?

3 A. 49,000 events?

4 Q. Yes.

5 A. Well, there's, like, 14 pages per event. So if you want  
6 to multiply that out --

7 Q. I see.

8 A. -- well, it's a lot of pages.

9 Q. Okay.

10 MR. MAO: All right. And then lastly, Your Honor, I  
11 just want to proffer 493 and discuss that real fast to lay a  
12 foundation. 493 should be the last 1006.

13 BY MR. MAO:

14 Q. Doctor, were you involved in the preparation of  
15 Exhibit 493?

16 A. Yes.

17 (Co-counsel confer off the record.)

18 BY MR. MAO:

19 Q. Were you involved in the preparation of 493?

20 A. Yes.

21 Q. Can you tell us what exactly you were trying to do here?

22 A. Well, again, this is a count, by app ID, of the number of  
23 events that were in the file.

24 Q. Again, with sWAA off; is that correct?

25 A. Yes, this is sWAA-off data.

1           **MR. MAO:** Your Honor, I'd like to move into evidence  
2 Exhibit Number 493.

3           **MR. SANTACANA:** No objection.

4           **THE COURT:** 493 will be admitted.

5 (Trial Exhibit PX493 received in evidence.)

6           **MR. MAO:** Okay. If we could display that to the jury.

7 **BY MR. MAO:**

8 **Q.** Is this aggregate-level data or event-level data?

9 **A.** This is event-level data.

10           **MR. MAO:** Okay. Can we just scroll down to the bottom  
11 so that we get a sense of the volume.

12           **THE WITNESS:** Can you scroll back up to the top?

13 **BY MR. MAO:**

14 **Q.** Sure.

15 **A.** Hold there.

16 Okay. Yeah, I think it's about 9,000 records.

17 **Q.** Okay. So looking at this, this is the type of volume of  
18 data that's being collected at an event level that's causing  
19 things like depletion of battery life; is that correct?

20 **A.** Yes.

21 **Q.** And this is being collected directly from the devices;  
22 isn't that correct?

23 **A.** Yes.

24 Can you give me one more second? I just want to look at  
25 this --

1 Q. Sure.

2 A. -- the numbers a little more.

3 (Witness examines document.) Yeah. Okay. Thank you.

4 MR. MAO: We have one more record, Your Honor, that  
5 we'll just deal with later, if you don't mind.

6 BY MR. MAO:

7 Q. I'm just going to -- can you please explain the difference  
8 between aggregate and event-level data?

9 A. Yes. Aggregate data would be, like, a total. So Google  
10 might report to an app developer and say, "Your total number of  
11 daily active users for a certain day was 50,000 users." That's  
12 an aggregate statistic. It's not saying who those 50,000 users  
13 are. It's just giving them a total, like this is the size of  
14 the population of people who used your app or who -- you know,  
15 who downloaded and installed the app today. It would be some  
16 sort of business metric in aggregate, total statistic.

17 Q. For the purposes of the technology that we're talking  
18 about here, why does that difference between aggregate versus  
19 event-level data matter?

20 A. Well, what matters is that the data that's taken from the  
21 phone is event-level data; and Google's taking that data,  
22 they're copying it, and they're using it.

23 The aggregate data is what's reported out to the app  
24 developer. They don't get the event-level data. That's  
25 Google's data. They keep that. Actually, it's the user's data

1 that Google's got possession of.

2 **Q.** Did the WAA and sWAA technology operate as it was  
3 described -- as it was described, question mark?

4 **A.** No, according to my test, it did not operate as described.

5 **Q.** Why, in your opinion, did it not operate the way it was  
6 described?

7 **A.** Well, the fundamental issue is that the data would be  
8 taken and copied before the consent check was done. So there's  
9 no possibility of that consent check affecting whether the data  
10 would be taken and copied because Google didn't even look until  
11 after they'd already taken and copied the data.

12 **Q.** Is the data taken and copied, is it de-identified?

13 **A.** No. The data is personally identified. It's  
14 absolutely -- Google, upon receiving the data, knows who that  
15 user is.

16 **Q.** And can that data, the sWAA-off data, can that be  
17 reconnected?

18 **A.** Yes.

19 **MR. MAO:** That's all I have for direct, Your Honor.

20 **THE COURT:** Mr. Santacana?

21 **MR. SANTACANA:** Your Honor, I'm handing up  
22 Dr. Hochman's deposition transcript and expert report for your  
23 reference during the examination.

24 You got your binders? Mr. Mao, are you ready?

25 **MR. MAO:** Yes, please.



CROSS-EXAMINATION

**BY MR. SANTACANA:**

**Q.** Okay. Good morning, Dr. Hochman.

**A.** Good morning.

**Q.** It's nice to see you again. You and I have met before;  
right?

**A.** Yes.

**Q.** We met at your deposition?

**A.** Yes.

**Q.** We spent a day together, and you testified that day under  
oath?

**A.** Yes.

**Q.** And that day you did your best to tell the truth under  
oath; right?

**A.** Yes.

**Q.** And we haven't met since then until right now?

**A.** I think that's correct.

**Q.** Great.

Now, you agree, Dr. Hochman, that your role here as an  
expert is the role of someone who is attempting to be neutral.  
Is that fair to say?

**A.** Yes.

**Q.** Your job here is to explain the facts as accurately as you  
can; right?

**A.** Yes.

1 Q. And that's true even if the facts lead to a conclusion  
2 that is less favorable to the plaintiffs than to Google. Is  
3 that fair to say?

4 A. My job is to say the facts as I see them.

5 Q. Even if that leads to conclusions that are less favorable  
6 to your clients; right?

7 A. I'm not necessarily sure that I know what's more or less  
8 favorable, but I just say the facts as I understand them.

9 Q. So your testimony is that you do not have a sense, sitting  
10 here right now, of which conclusions you've drawn are more or  
11 less favorable to your clients?

12 A. There's a lot of issues in play here that are not my area.  
13 There are all kinds of legal questions and things that I don't  
14 fully understand.

15 Q. Now, you testified under oath that you had not reached any  
16 conclusions in your work in this case that you thought were  
17 less favorable to the plaintiffs. Didn't you say that?

18 A. I may have said something like that. I think you should  
19 read exactly the question and the context of it just for  
20 clarity.

21 Q. We'll get to your deposition transcript, Dr. Hochman.

22 Now, will you agree with me, as you did at your  
23 deposition, that if you were to discover that you had made a  
24 mistake in your expert opinions, that it would be your  
25 obligation to disclose that here to the jury? Do you agree

1 with me?

2 **A.** Well, what I would agree with is that if I make a mistake,  
3 I want to correct it. Yes, I would want to correct --

4 **Q.** I --

5 **A.** -- a mistake.

6 **Q.** I am so sorry. Go ahead.

7 **A.** No, that's all right. I was -- if I have made a mistake,  
8 I always would like to correct it.

9 **Q.** You wouldn't hide a mistake that you had made in your  
10 expert opinions from the jury, would you?

11 **A.** If I have made a mistake, I would want to correct it,  
12 I think, yes.

13 **Q.** Yes? You wouldn't hide it?

14 **A.** I'm not sure exactly what you mean by "hide it," but I  
15 would want to correct -- if I had made a mistake, I would want  
16 to correct it.

17 **Q.** Now, you are a very experienced expert witness; isn't that  
18 right?

19 **A.** I have worked on, as I said, probably hundreds of cases;  
20 and I've testified 60 times at deposition, over 60 times, and  
21 at over 20 trials.

22 **Q.** You have a Ph.D. in computer science?

23 **A.** I do.

24 **Q.** You are not a tenured professor at any college or  
25 university; right?

1 A. No.

2 Q. Your primary professional activity is running a business  
3 called Hochman Consultants?

4 A. That depends on when.

5 Q. Right now, your primary source of income is your work at  
6 Hochman Consultants, your consultancy. Isn't that fair to say?

7 A. Well, it's -- things have changed a little bit within the  
8 last year, so that's not exactly right as of today; but --  
9 I guess you can just ask a follow-up if you want to.

10 Q. How about at the time of your deposition and the time that  
11 you were retained to work on this case? At those two points in  
12 time, your primary professional activity and source of revenue  
13 was running your consultancy, Hochman Consultants; right?

14 A. At the time in those years, that's where I was making most  
15 of my income from, although it does vary from year to year.

16 Q. So is it fair to say that at the time you were retained to  
17 work on this case, your primary professional activity was  
18 providing expert testimony for lawyers? That was your main  
19 business; right?

20 A. Well, I would put it differently. I help people with  
21 computer problems. They come to me, they ask for help, and I  
22 provide my time. Okay? I don't sell testimony. I sell time.

23 Q. So you're not saying that these lawyers hired you because  
24 they couldn't figure out how to work their laptops; right?

25 That's not what you mean by "computer problems"?

1 A. Well, it started with that kind of problem in college.  
2 That was the basic problem I would get. People would knock on  
3 my door and say, "Can you help me?" And I'd find -- save their  
4 paper in the middle of the night.

5 And over time, it's escalated to more and more severe  
6 problems until, well, we come here today with what I think is a  
7 very severe problem.

8 Q. Dr. Hochman, when you were hired by the lawyers sitting at  
9 this table, were you hired to help them with a computer problem  
10 with their personal computers or were you hired to provide time  
11 to this case?

12 A. I was hired to provide time, analysis, and opinions in  
13 this case.

14 Q. And you have been hired hundreds of times to provide  
15 expert opinions by lawyers, have you not?

16 A. Yes.

17 Q. Since July of 2020, you've testified a number of times;  
18 right?

19 A. Yes.

20 Q. Including in this case?

21 A. Yes.

22 Q. Now, the plaintiffs' lawyers are paying you to be here  
23 today for your time; right?

24 A. Yes, I am being paid for my time.

25 Q. By the plaintiffs' lawyers?

1 A. I'm paid -- they cut the check.

2 Q. And the time that you've spent sitting in the gallery  
3 since the trial began?

4 A. Yes.

5 Q. And your rate is what?

6 A. I believe it's \$800 an hour.

7 Q. Since this case began and you were first hired by these  
8 lawyers, is it fair to say that they have paid you and your  
9 team over a quarter million dollars?

10 A. Yes.

11 Q. More than a quarter million dollars?

12 A. Well, I have a metric. I know that we've logged, just  
13 myself and Julie Burns and Sam, who's here today, we've logged,  
14 I think, about a thousand hours -- okay? -- between us.

15 And then there are other people on the team who also have  
16 assisted and participated, and they are billing separately.

17 Q. So is it more than a quarter million dollars?

18 A. Well, I'd have to look at the breakdown between my time  
19 and other people's time because we bill at different rates, but  
20 it's -- it's definitely a good amount of money over a period  
21 of, like -- well, I guess it's about four years, 2022 onward.

22 Q. And this is not the only case that the plaintiffs' lawyers  
23 sitting at this table have hired you for, is it?

24 A. There was a parallel case called *Brown v. Google*.

25 Q. So they hired you for a different case also against

1 Google; right?

2 A. These cases, I think, came in at about the same time.

3 Q. So they hired you for two different cases, to testify  
4 against Google in two different cases?

5 A. They had two cases, and I was hired to work on both of  
6 them.

7 Q. And they've paid you in that other case, separate from the  
8 numbers we just discussed?

9 A. Yes.

10 Q. Do you know how much you made in that case?

11 A. About probably a similar amount of money, order of  
12 magnitude.

13 Q. Now, it's not just the law firm of Mr. Mao that hired you  
14 and has paid you for the last four years. It's also a second  
15 law firm that has hired you in the past, Susman Godfrey; right?

16 A. Yes.

17 Q. That law firm is also at this table?

18 A. Yes.

19 Q. Now, you actually consider these plaintiffs to be your  
20 client, don't you?

21 A. So I think -- I just want to be precise. I send my bill  
22 to the law firm. That's what I've been directed to do. And  
23 the client is, I guess -- maybe that's a legal question, but  
24 the client is either the law firm or the plaintiff.

25 Q. Your client is either the law firm or the plaintiff?

1 A. Well, that's a legal question. But the law firm is the  
2 one who's issuing checks to me, and the plaintiff is the one  
3 who's the party in the case.

4 Q. A moment ago you just said, "My client is either the law  
5 firm or the plaintiff." You said that; right?

6 A. Well, I think you might be asking a -- like a legal  
7 definitional question. But let's just say that the law firm is  
8 paying my invoices and I'm aware of who the plaintiff is.

9 Q. Dr. Hochman, if there's a problem with my question, your  
10 lawyer, your client will object, and he hasn't objected. So I  
11 would like a straight answer to my question, which I did ask  
12 you at your deposition.

13 You consider your client in this case to be the  
14 plaintiffs; right?

15 A. I don't recall how I answered that question at the  
16 deposition. I'll just say that. I don't recall how I answered  
17 it. And I -- I'm working on behalf of the plaintiffs, and the  
18 law firm is the one who's paying my invoices, and I send my  
19 invoices to the law firm.

20 Q. Okay. You work on their behalf. That's good enough.

21 Now, in addition to being paid by these lawyers, you have  
22 also received other forms of compensation, have you not?

23 A. I'm not sure what you're referring to; but if you could be  
24 more specific, I'll try to answer.

25 Q. In your opinion, have you received any other forms of



1 compensation from these lawyers other than the hourly rate of  
2 \$800 an hour that they've been paying you?

3 **A.** Well, the way the money is distributed, I send them a bill  
4 for my time and for Julie's time, and Julie and I then get paid  
5 a cut of that money, and Hochman Consultants retains a portion  
6 of the money to pay for expenses and overhead. And then when  
7 all is said and done, if there's extra money, the partners  
8 divide it. We have three partners at the moment. There's  
9 myself and Julie and Rob.

10 **Q.** Okay. So I understand that you've been paid a substantial  
11 sum of money for time. My question was: You've also received  
12 another form of compensation, have you not?

13 **A.** I'm not sure what you're referring to; but if you have an  
14 idea, give me a hint and I'll confirm it if it's true.

15 **Q.** Well, these lawyers flew you here, did they not?

16 **A.** Yes. The contract -- or the agreement is that it's always  
17 the case that when I go to work for someone, if I have  
18 work-related travel expenses, I get reimbursed for those. I  
19 don't -- I don't think that's compensation. That's just  
20 reimbursement of work-related expenses.

21 **Q.** They've put you up in a hotel for weeks, haven't they?

22 **A.** I've been here for eight days, although, honestly, I'd  
23 rather still be at home, but I came here and I'm doing my duty.

24 **Q.** And you have been strategizing and meeting with these  
25 lawyers and the plaintiffs themselves for days at that hotel,

1 have you not?

2 **A.** Yes, I've been there. And the case is very important, and  
3 there's a lot of -- a lot of materials, and I want to come here  
4 and be prepared and to be able to answer your questions  
5 efficiently.

6 **Q.** Was that a "yes"?

7 **A.** Yes. I did say "yes."

8 **Q.** You said a lot more, though.

9 **A.** I answered you. I mean, I'm being conversational. I'm  
10 trying to be friendly and give you a friendly answer.

11 **Q.** You slept at the hotel the last eight days. You're going  
12 to sleep at the hotel for a couple more weeks?

13 **A.** I am about to leave the hotel tonight because my  
14 grandmother died and I'm going to her funeral tomorrow.

15 **Q.** You're not coming back? We won't see you next week?

16 **A.** I don't know.

17 **Q.** Okay. Well, I'm sorry to hear about your grandmother.

18 **A.** That's all right. Thank you.

19 **Q.** Was it a nice hotel?

20 **A.** It's a nice hotel, yes. It's the Ritz-Carlton. It's a  
21 very nice hotel.

22 **Q.** And are they going to reimburse you for your stay at the  
23 Ritz-Carlton?

24 **A.** I think that they've actually got some sort of corporate  
25 rate, a good discounted rate, for a block of rooms. So they're

1 paying for the rooms for the people who are working on the  
2 project.

3 Q. Okay. So it's a budget Ritz-Carlton, is what you're  
4 saying?

5 A. No, it's not a budget Ritz-Carlton. It seems to be very,  
6 very nice. I don't usually stay at the Ritz-Carlton. But in  
7 this case, that's where they were able to get the block of  
8 rooms; and I understand that there's, you know, a discount or  
9 group rate. That's sort of normal.

10 Q. Did you talk to these lawyers about their special  
11 discounted rate at the Ritz-Carlton?

12 A. No. I think it may have just come up in passing  
13 somewhere, but my understanding is that when you go -- I mean,  
14 I've -- in my distant past, I did some travel planning. If you  
15 take a group of people --

16 Q. Dr. Hochman, I'm sorry.

17 THE COURT: I think we've exhausted the Ritz-Carlton  
18 part.

19 MR. SANTACANA: I am moving on.

20 THE COURT: Let's move on.

21 MR. SANTACANA: I am moving on, Your Honor.

22 BY MR. SANTACANA:

23 Q. So, Dr. Hochman, your opinions have been excluded by  
24 judges in the past in other cases, have they not?

25 A. Yes.

1 Q. They have been excluded in the past as unreliable, have  
2 they not?

3 A. Yes.

4 Q. For example, in a case called *Affiliati Network*,  
5 *Incorporated vs. Wanamaker*, you submitted an expert opinion in  
6 the case; right?

7 A. Yes. Let me think, because this was -- I think this was  
8 eight years ago, but yes.

9 Q. And the federal judge in that case excluded the entirety  
10 of your opinion as unreliable, did they not?

11 A. Yes.

12 Q. In fact, that judge characterized your opinions in that  
13 case as, quote, "complete speculation"? Didn't the judge say  
14 that?

15 A. Yes.

16 Q. Other courts have also excluded your opinions, in whole or  
17 in part, as unreliable, have they not?

18 A. I am not aware of another one excluded in whole for that  
19 reason. I think there might have been one excluded because of  
20 a timeliness issue, an attempt to supplement after a deadline,  
21 which the Court decided wasn't allowed. There may be some that  
22 were excluded in parts. Perhaps you could name the cases and  
23 I'll confirm them.

24 Q. That's all right. I'll move on. I think I've made my  
25 point.

1 All right. Let's switch gears, Dr. Hochman.

2 You understand that the phrase "Google Account" is fairly  
3 important in this case, do you not?

4 A. Is the term "Google Account" fairly important in this  
5 case? I understand that the term has been used, and I  
6 understand that it's hotly contested.

7 Q. A hotly contested term; right?

8 A. I think you guys have been talking about the  
9 Google Account. I think I saw it in the opening statement.

10 Q. But your lawyers, they haven't been talking about the  
11 phrase "Google Account." Is that what you're trying to say?

12 A. No, I'm not trying to say that.

13 Q. Well, you didn't mention it during your testimony today,  
14 did you?

15 A. I think it came up on the screen at least.

16 Q. You didn't mention it during your testimony, did you?

17 A. I don't think that's quite right.

18 Q. Okay. Well, you understand that that phrase is found on  
19 the activity controls page with the Web & App Activity button,  
20 do you not?

21 A. Oh, yes. I remember it.

22 Q. It is also found on the WAA help page when a user clicks  
23 "Learn more," is it not?

24 A. It may be.

25 Q. You don't know?

1 A. Well, you know, if we're going to talk about the document,  
2 why don't we -- why don't we look at it together. I think that  
3 would be helpful.

4 Q. Well, Dr. Hochman, I'm sorry, but you testified for an  
5 hour that you believe that Google's description of WAA is  
6 inconsistent with what it does.

7 Do you recall, sitting here, now that I'm questioning you,  
8 whether the "Learn more" page uses the phrase "Google Account"?

9 A. I think it does, but, again, that's just from memory. I  
10 mean, the page -- it would be best for us to look at the page  
11 if we want to talk about it.

12 Q. You understand that the plaintiffs in this case contend  
13 that all of the data that Google receives when SWAA is off  
14 should be covered by the Web & App Activity button? You  
15 understand that's their theory; right?

16 A. Okay. I'll take your word for it.

17 Q. Well, you were here for opening statement; right?

18 A. Yes.

19 Q. So you heard it. You heard Mr. Boies's opening statement?

20 A. Yes. He said what he said.

21 Q. Did I mischaracterize his theory of the case?

22 A. I don't know that it's my place to say whether you're  
23 mischaracterizing him or not.

24 Q. Do you have any understanding of his theory of the case?

25 A. The theory of the case is -- it seems to be that's a legal

1 argument. I'm here for the facts.

2 Q. You understand that Google's contention is the Web & App  
3 Activity control is a control for what is saved in the user's  
4 Google Account? You understand that's Google's contention?

5 A. Yes, I've heard that argument made.

6 Q. For purposes of your expert opinions in this case, you  
7 created your own definition of the term "Google Account," did  
8 you not?

9 A. Well, we should read exactly what I wrote in my expert  
10 report because I think what I said was to the effect, "This is  
11 what this means to me." When you say a "Google Account," what  
12 it means to me is all the data -- it contains all the data  
13 related to me.

14 Q. Okay. So just to be clear for everybody, you created a  
15 definition just for this case, for your expert report, of the  
16 phrase "Google Account"? Yes or no?

17 A. I don't know that I would put it that way. I would  
18 probably say it a little differently.

19 Q. So you did not define the term "Google Account" in your  
20 expert report? Is that your testimony?

21 A. Well, I think it's -- I would flip it around. What I  
22 would say -- do you want to know what I would say, or do you  
23 want to just ask questions? I don't want to start talking  
24 without --

25 Q. I'm listening to your answer, Dr. Hochman. I'm just also

1 pulling up the footnote where you define it, but you can  
2 continue your answer.

3 **A.** No. I think the best thing would be for us to just read  
4 what I said. That would be the best.

5 **THE COURT:** Just answer his question. He's entitled  
6 to ask the question and you answer his question. If you can't,  
7 you tell him you can't. Answer his question.

8 **THE WITNESS:** Yeah. I mean -- now, I'm sorry. Can  
9 you reask the question?

10 **BY MR. SANTACANA:**

11 **Q.** Do you deny that you defined the phrase "Google Account"  
12 in a footnote of your expert report for this case? Do you deny  
13 that?

14 **A.** Oh, no, I'm not denying that.

15 **Q.** The definition that you gave in your expert report was,  
16 quote [as read]:

17 "The data that Google collects and saves  
18 regarding a user, including data that Google  
19 characterizes as pseudonymous."

20 That's the definition you gave, is it not?

21 **A.** That's what I said in that footnote.

22 **Q.** The definition that you created for this lawsuit is not  
23 the same as the definition that Google itself uses, is it?

24 **A.** I have to take issue with your statement. I don't agree  
25 with you.



1 Q. You don't agree with that?

2 A. No.

3 Q. Well, let's take a look at what you said in your  
4 deposition at page 39, lines 11 through 18.

5 (Video was played but not reported.)

6 BY MR. SANTACANA:

7 Q. What Google thinks "Google Account" means may be different  
8 than what you think it means. You didn't misspeak, did you?

9 A. No. I agree with that.

10 Q. Not only that, but the phrase "Google Account," as it  
11 appears on the Web & App Activity control, you admit that that  
12 is Google's use of the phrase, not your definition of the  
13 phrase. You admit that, do you not?

14 A. So if I can, just to be very clear, what I'm taking issue  
15 with in your prior question is your use of the word  
16 "definition." Okay?

17 Google's using the phrase and they're saying some things  
18 about Google Account, but they never actually anywhere provide  
19 a clear definition of what that means and what that includes.

20 Q. Dr. Hochman, my question was quite different. So please  
21 listen.

22 The phrase "Google Account," as it appears on the  
23 Web & App Activity control, Google's use of that phrase is  
24 different than yours, is it not?

25 A. Yes, Google's use of that phrase is different than mine.

1 Q. And you are aware that the way that Google means  
2 Google Account in its privacy policy is different than the  
3 definition that you came up with for this lawsuit. You're  
4 aware of that?

5 A. I think that Google's describing -- says some things about  
6 it, but I don't consider it to be an actual definition. It is  
7 not clear. It is vague what that includes. At least it's  
8 vague to me.

9 Q. Dr. Hochman, my question was not whether it's vague to  
10 you. My question was whether you are aware that the way Google  
11 uses the phrase "Google Account" in its privacy policy is  
12 different than the definition you came up with when you came up  
13 with your expert opinions in this case. You're aware of that,  
14 are you not?

15 A. Okay. I just want to -- I want to parse this very  
16 carefully.

17 I'm not saying that what Google said is a definition.  
18 Okay? But I understand that Google is taking a different view  
19 of what "Google Account" means and that this is actually just a  
20 word game, that this is really some weird word game that Google  
21 seems to be doing about this word that they've --  
22 "Google Account" that's nowhere clearly defined: This is  
23 what's in it and this is what's not in it. This is the data of  
24 yours that's in the account, and here's the data of yours that  
25 we're storing somewhere on the side, something I call the

1 shadow account. That's not explained anywhere.

2 **Q.** Let me ask you about that phrase "shadow account."

3 Is that an accepted term in the art of computer science,  
4 "shadow account"?

5 **A.** Those are just descriptive words from -- you know, I'm  
6 just trying to be descriptive in a way that people would  
7 understand, because an account, in computer science, typically  
8 means all the data related to a user.

9 I think we had a long discussion about this, how the word  
10 "account" can kind of have two meanings, like a golf club. Do  
11 you remember that?

12 **Q.** Let me just ask you this: The term "shadow account" is a  
13 term you came up with for this case?

14 **A.** I don't know that I haven't used it before. I mean, it  
15 was just some words that came quite naturally.

16 **Q.** When you were reading the documents and emails from  
17 employees at Google in preparation for this case, you  
18 understood that internally those people were using the term  
19 "Google Account" differently than the definition that you came  
20 up with; correct?

21 **A.** Well, I think that you're making a categorical statement  
22 about some unknown emails. Maybe we should look at the emails  
23 and let's -- let's be specific. Let's look at which emails  
24 you're referring to because it's hard for me to answer a  
25 question about these emails sight unseen.

1 Q. Dr. Hochman, I'm just quoting your deposition testimony to  
2 you. I'll say it again.

3 When you were reading documents and emails from employees  
4 at Google in preparing for this case, you understood that the  
5 way they used the term "Google Account" was different than the  
6 definition you came up with for this case. You understood that  
7 when you were reading those documents; right?

8 A. I guess whatever I said in the deposition, I stand by it.  
9 I'm not trying to change my testimony. But at the same time, I  
10 don't want to -- I mean, as I'm sitting here now testifying  
11 two years later, I don't want to make statements about  
12 documents that -- I would like to look at them, at least to  
13 refresh my memory. I'd like to see the documents you're  
14 referring to.

15 Q. Dr. Hochman, you saw evidence in this case that  
16 internally, before this lawsuit was ever filed, Google  
17 employees used the term "Google Account" interchangeably with  
18 "GAIA ID-tied information"; right?

19 A. I mean, I think I might have seen something that was like  
20 that, and I just would like to -- I think it would be best for  
21 all concerned to just put the document up and let's look at  
22 them.

23 Q. Dr. Hochman, when your counsel and client gets up here, he  
24 can show you whatever he wants to show you. Okay? I'm just  
25 asking you about your sworn testimony in this case. Okay?

1 Now, I read to you how you described the term  
2 "Google Account." Did you consult with these lawyers when you  
3 were drafting that definition?

4 **A.** That is actually a definition, I think, that I suggested,  
5 that I -- my opinions are my own.

6 **Q.** So nobody here ordered you to redefine "Google Account" in  
7 a footnote of your expert report?

8 **A.** I think that I've been explaining, as this case developed,  
9 there was a time when we would talk about the case and I would  
10 give advice and we would talk about things and we would explain  
11 to each other. They would tell me about the case. I would  
12 tell them my impressions. And then I wrote the report, at  
13 least a first draft.

14 And we worked on the draft, and there were, of course,  
15 revisions over time. And I'm -- I don't know exactly -- I  
16 don't remember the genesis of that footnote. Okay? Let's just  
17 say that I don't remember the exact circumstances of why I put  
18 that in there or how I put that in there. But what I do  
19 remember is that footnote accurately represents my opinions.

20 **Q.** You don't remember the genesis of the definition in the  
21 footnote? That's your testimony?

22 **A.** You're asking me if a lawyer suggested it to me.

23 **Q.** Dr. Hochman, it would be a lot easier if you could just  
24 listen to my questions carefully and then answer them directly.  
25 Okay?

1 Your lawyer will get up and he will ask you to explain.  
2 But each of us is on a clock. We don't have unlimited time.  
3 So please just answer my question.

4 You do not recall the genesis of the footnote defining  
5 "Google Account" in your expert report?

6 A. Yeah, I don't remember when I put it there.

7 Q. So it is possible that that definition was suggested to  
8 you by a lawyer at this table; right?

9 A. I think I wrote it there, but maybe somebody there said,  
10 "Hey, Jonathan, do you remember when you said this? It would  
11 be a good thing to put it here because you said it before or  
12 you thought it before and now this would be helpful to explain  
13 things."

14 Q. Now, before you started working on this case, before you  
15 started getting paid for your time on this case, you had a  
16 general understanding of what "Google Account" means; right?

17 A. Yes, I think I had an understanding of what it means.

18 Q. And your understanding of what "Google Account" means  
19 before you were paid to work on this case was, quote, "I can  
20 log into Google and my account has some collection about me."  
21 That was your general understanding before you knew anything  
22 about this case?

23 A. That sounds right.

24 Q. Now, when you first joined the case, you didn't know  
25 anything about it; right?

1 A. That's right.

2 Q. And one of the first things you did was read the  
3 description of Web & App Activity?

4 A. Okay.

5 Q. And when you read that description, you formed no opinion  
6 whatsoever about whether Web & App Activity should apply to  
7 pseudonymous data. You had no opinion about it after that very  
8 first time you read it; right?

9 A. That's probably fair.

10 Q. And at the time that you first read the Web & App Activity  
11 description, you knew what pseudonymous data was, did you not?

12 A. I would say this: I understood it then; and as a result  
13 of my -- my studies and my work at school, I've come to have a  
14 greater understanding of it over time because that's one of the  
15 topics that I've been researching, actually.

16 Q. And you are not, Dr. Hochman, giving the opinion in this  
17 case that your custom definition of "Google Account" is the  
18 most natural definition of the phrase "Google Account"? That  
19 is not an opinion that you are providing in this case. Am I  
20 right about that?

21 A. I don't think I've said that. I don't know, I mean, if I  
22 did say it, but it seems like a strange thing for a technical  
23 expert to say.

24 Q. I agree. You're not going to offer that opinion; right?

25 A. I don't think I've testified to that effect. I think I

1 might have said that that's what naturally comes to me, but I  
2 can't -- I can't speak for what other -- what's in someone  
3 else's mind.

4 **Q.** What naturally came to you after you were hired by these  
5 lawyers as a computer scientist with 20 years of experience  
6 testifying and working on Internet marketing? That's what came  
7 most naturally to you?

8 **A.** Well, the way I would put it is I have experience with  
9 online platforms, long experience with online and digital  
10 platforms. And usually, when someone says "an account," that's  
11 where you put the data related to the user. The account -- the  
12 data of that user, the data connected to that user goes in that  
13 user's account.

14 That's sort of the default explanation of what that  
15 account is, subject, of course, to my long discussion with you  
16 about golf clubs, the way the golf club could be the thing you  
17 use to hit the ball or it could be the place where you go after  
18 work to get a beer.

19 **Q.** Dr. Hochman, speaking of your experience with Internet  
20 marketing, you had used Google Analytics extensively before  
21 this -- joining this case; right?

22 **A.** Yes.

23 **Q.** You had used it for about ten years before joining this  
24 case, as a person who owns a business?

25 **A.** I -- I had used it, in fact, since Google acquired Urchin



1 because I had been using Urchin even before Google acquired  
2 that product.

3 Q. Google Analytics was, at the time that you joined this  
4 case, employed on Hochman Consultants' website, was it not?

5 A. Yes.

6 Q. You understood, at the time, what it was like to use  
7 Google Analytics from the same perspective as a website or app  
8 developer; right?

9 A. Yes.

10 Q. After your experience with Google Analytics, you read the  
11 description of WAA; right?

12 A. Yes.

13 Q. And when you read that description, you had -- you formed  
14 no opinion at all about whether or not Google Analytics data  
15 that is pseudonymous should be controlled by WAA or not; right?

16 A. I think I may have said that before, and what I would say  
17 about it is that this is actually -- it seems that it takes  
18 people a while to come to understand what's going on here. It  
19 actually takes time to gain understanding and to review all the  
20 information.

21 Q. Time you were paid for?

22 A. Well, I'm paid for my time working for my clients, yes.

23 Q. You gained your understanding on the clock, at \$800 an  
24 hour?

25 A. Well, not exactly because some of my understanding is from

1 reviewing the documents in the case; some of my understanding  
2 is just from experience and also from education, from studying.  
3 I've been working on a digital identity product -- project  
4 since 2018. So some of my time is -- a lot of my time,  
5 actually, is relatively uncompensated.

6 **Q.** Before you joined this case, you had been working on a  
7 project, the goal of which was to help data online be protected  
8 and kept private; right?

9 **A.** That's sort of a high-level general way of saying it,  
10 sure.

11 **Q.** And yet, when you joined the case in 2020 and you first  
12 read the description of WAA, you formed no opinion about  
13 whether or not pseudonymous Google Analytics data should be  
14 controlled by WAA; right?

15 **A.** I -- when I first looked at it, I think that what I was  
16 doing was I was open-minded. I was looking at that, and I  
17 didn't just jump to some snap opinion. I wanted to see all the  
18 evidence and give it thorough consideration.

19 **Q.** So you had no opinion when you first read it? Is the  
20 answer to my question "yes"?

21 **A.** Well, in this case, I'm engaged in an exercise where what  
22 my job is, is to be thoughtful and to be -- not to jump to  
23 conclusions.

24 **Q.** Would you --

25 **A.** So I understand what you are asking, and I just want to

1 make clear that I'm engaged in an exercise here of trying to  
2 get to the facts. I'm trying to be thoughtful and I'm trying  
3 to consider all the information, and I'm trying not to jump to  
4 some immediate opinion without considering everything.

5 **Q.** Dr. Hochman, when you first started this case and you read  
6 the Web & App Activity description and you had used  
7 Google Analytics before, you did not form the opinion that  
8 Google should dump all of the pseudonymous Google Analytics  
9 data that it had? That was not an opinion that you formed  
10 right at the beginning, before you had started working on the  
11 case and meeting with the lawyers? Just when you read the  
12 description, that was not an opinion that you formed; right?

13 **A.** Well, of course, because I hadn't seen the data. So I  
14 didn't even know what -- you're saying the pseudonymous data,  
15 but I hadn't seen that data. I didn't know what it was.

16 **Q.** You testified that you'd never even -- it had never  
17 occurred to you, never occurred to you that Google would have  
18 pseudonymous data that's controlled by WAA. You hadn't thought  
19 about it before you joined the case?

20 **A.** Well, I think you asked that in the context of had I used  
21 the WAA and sWAA controls, was I aware of them. Yes, I was  
22 aware of them.

23 And then you asked if I had thought about how those  
24 controls intersected with Google Analytics, and I said I hadn't  
25 really thought about that because I just looked at this as,

1 well, here's some switches and they should do what they say,  
2 and there's Google Analytics, which provides me with aggregated  
3 data. I didn't see an immediate contradiction.

4 **Q.** You did not see an immediate contradiction when you joined  
5 the case. That's exactly what you said in your deposition;  
6 right?

7 **A.** Well, it's great that I remembered it, yes.

8 **Q.** Now, this case focuses on data that's collected by  
9 analytics SDK, which is the Firebase SDK and the Google Mobile  
10 Ads SDK. Fair to say?

11 **A.** Yeah. I'll just be super precise so that no one gets  
12 confused. It's collected by Google Analytics for Firebase,  
13 which is the product within that Firebase SDK, and also in  
14 Google Mobile Ads SDK, yes.

15 **Q.** The SDKs in apps that we are talking about, they are  
16 installed by the app developer, not Google; right?

17 **A.** Correct.

18 **Q.** Google doesn't go to Reddit and say, "I'm putting this SDK  
19 in your app"?

20 **A.** All right. There's a little wrinkle. I just want to be  
21 clear. There was a time when Google pushed out an update of  
22 the SDK, one of these SDKs, and actually inserted  
23 Google Analytics for Firebase into the SDK. So just to be  
24 clear, I think I've documented that in my report.

25 **Q.** Are you giving the opinion that Google forced developers

1 to use any of these SDKs?

2 **A.** No.

3 **Q.** Okay. Now, Google Analytics has features that are on  
4 automatically and it has features that are customized by the  
5 app developer; right?

6 **A.** That's right.

7 **Q.** Developers can choose which types of information to send  
8 to Google, can they not?

9 **A.** That's correct.

10 **Q.** There are events that are automatically collected; right?

11 **A.** Yes, that's right. They're called the default events.

12 **Q.** The default events. Earlier we saw one called first open.  
13 That's a default event; right?

14 **A.** Yes.

15 **Q.** But developers can create custom events to add on more  
16 information; right?

17 **A.** That's correct.

18 **Q.** And they do that because there might be something in the  
19 app that they want to track and understand how it's working  
20 that's not offered by Google as a default?

21 **A.** Yes, that's right. There are custom events.

22 **Q.** Developers can also choose which user parameters go along  
23 with these custom events; right?

24 **A.** Yes.

25 **Q.** Google has no role in choosing those. There's some

1 default ones, but developers can send a lot more; right?

2 **A.** Yes. The developers can choose what data they send to  
3 Google, and Google can choose whether to accept that data and  
4 save it or not.

5 **Q.** Now, you are not aware of any evidence in this case that  
6 Google does anything to try and understand what a developer's  
7 custom event actually means? You're not aware of any such  
8 evidence; right?

9 **A.** That's right. I'm not aware of Google attempting in any  
10 way to implement safeguards against developers uploading  
11 information that's against policy.

12 **Q.** You -- let's talk about the logs that you discussed with  
13 Mr. Mao.

14 When sWAA is turned off, you concede that Google logs the  
15 app activity data in question into a non-GAIA log. You concede  
16 that; right?

17 **A.** I've said that. I don't -- yes, I've said that.

18 **Q.** And you concede that Google Analytics actually doesn't  
19 even log IP address; right?

20 **A.** Wait a second. Google Analytics is the product that  
21 displays the data to the Web developer. Do you mean  
22 Google Analytics for Firebase? If so --

23 **Q.** I do mean that.

24 **A.** Okay. I believe the IP address is sent along in the data  
25 packet. I believe we've seen it in the packet. After the data

1 is taken by Google and they receive it and copy it and process  
2 it, sometimes that IP address might go to certain places and  
3 not to other places. So in a roundabout way, I'm somewhat  
4 agreeing with you.

5 **Q.** Well, at your deposition, you fully agreed with me that  
6 Google does not log IP address with Google Analytics for  
7 Firebase.

8 **A.** I think that we should just take a look at what I said to  
9 be very careful, because if I'd said something wrong, I would  
10 correct it.

11 But what I would say is that you can't get the  
12 IP addresses from Google Analytics. If you're a developer and  
13 you're using Google Analytics, you can't see -- they don't show  
14 you the IP addresses.

15 **Q.** I asked you, and you were under oath, Google Analytics  
16 does not store IP addresses in logs?

17 **A.** Yes, Google Analytics data doesn't have the IP address.  
18 It's not available. As a Google Analytics user, I can't see  
19 the IP addresses.

20 **Q.** Now, you -- well, excuse me. No.

21 The question was: Google does not store, Google does not  
22 store the IP address that is sent via Google Analytics in any  
23 Google logs. It throws it away. You don't deny that, do you?

24 **A.** Well, I think we might have been -- there might have been  
25 a confusion there because I was thinking of Google Analytics.

1 I wasn't thinking of the Google Analytics for Firebase, which  
2 is taking the data from the user's phone. I think we've seen  
3 that the IP address is in the data packets.

4 **Q.** So your testimony is that you misunderstood my question?

5 **A.** I don't know for sure. We could go look at that  
6 transcript carefully and try to -- try to sort it out.

7 But I will say this: My understanding is that  
8 Google Analytics isn't giving information about IP addresses  
9 out. That is not part of Google Analytics. That's not what  
10 that does.

11 **Q.** Okay. Well, we'll hear from Mr. Ganem, who's the expert  
12 on Google Analytics, about what it does and doesn't store, so  
13 I'm going to move on.

14 **MR. MAO:** Your Honor, can I just -- I've been trying  
15 to be polite, but can you allow the witness to just finish his  
16 answer before you go on?

17 **BY MR. SANTACANA:**

18 **Q.** Dr. Hochman, was your answer complete?

19 **A.** I think I've said enough on the topic. Let's move on.

20 **Q.** You mentioned demographic information, like age and  
21 gender, during your testimony earlier, did you not?

22 **A.** Yes.

23 **Q.** True or false, Dr. Hochman, you do not know if that  
24 demographic information came from Google or if it was sent by  
25 the app developers? That's not something you studied for this



1 case; right?

2 **A.** Oh, the fact is that the information -- my assertion is  
3 that that information is included, if available, in that data  
4 bundle. So Google is taking that information from the phone.  
5 When they get it, they copy it, and then they process it and  
6 use it.

7 **Q.** Okay. Let's talk about the consent check process you were  
8 discussing earlier with your counsel.

9 To check whether a user on Android has SWAA on or off,  
10 Google performs a consent check; right?

11 **A.** Yes.

12 **Q.** The way that Google does that is that it sends something  
13 called DSID to a server that is separate from the server that  
14 has the analytics data to figure out what the user's settings  
15 are; right?

16 **A.** Let me just say it to be more precise.

17 **Q.** Sure.

18 **A.** After Google takes the data off the phone and receives it  
19 at their server, that first server uses a second server to  
20 decrypt the DSID and get back the consent signal. So that  
21 piece of it, I agree with you on.

22 **Q.** And the DSID that is used to check the settings is  
23 encrypted, is it not?

24 **A.** Yes.

25 **Q.** It is not the GAIA ID of the user; right?

1 A. It is, I think, the encrypted GAIA ID.

2 Q. It's an encrypted GAIA ID that you can't figure out  
3 without having the encryption key; right?

4 A. Indeed. Google has both the data and the key. That's  
5 right.

6 Q. And I think we all know Google in this courtroom. You're  
7 not suggesting here that Google's encryption methods are in any  
8 way below average; right?

9 A. Oh, no, I'm not criticizing Google's encryption methods.

10 I think the problem with this is, of course, that the data  
11 and the key are being held by the same entity; and the user's  
12 already indicated, if SWAA is off, that they don't want that  
13 entity to have this data. So that's where I see an issue.

14 Q. The encryption key is also temporary. Google trashes it?

15 A. Yes, I'm aware that Google uses key rotation.

16 Q. The purpose of using key rotation is to make the data even  
17 safer and less likely that somebody could decrypt the DSID;  
18 right?

19 A. I understand that key rotation is a good practice, and I  
20 understand Google is following that.

21 Q. And, in fact, Google's design of separating the consent  
22 check into two servers, one with analytics data and one with  
23 the DSID, that is a design pattern that you recognize from  
24 computer science, do you not?

25 A. Yes, very much so.

1 Q. It's called isolation; right?

2 A. Yes.

3 Q. Its purpose is to make it more difficult for an attacker  
4 to be able to put together the information about the person's  
5 identity with the other information?

6 A. Right. But let's -- I saw you objecting to some of the  
7 documents when things were said incompletely. I do want to  
8 complete your statement.

9 Isolation --

10 Q. My statement was complete, in my opinion.

11 A. Okay. That's all right. I'll tell you what. I have more  
12 to say about isolation because you missed an important premise  
13 of isolation; but if you don't want to ask, then, you know --

14 Q. I'm sure Mr. Mao can ask you about that if he'd like to  
15 use his time on it.

16 A. Okay.

17 Q. You do not dispute that the isolation design in question  
18 separates data that is stored with a GAIA ID from data that is  
19 stored with some other identifier? You don't dispute that?

20 A. No, I'm not disputing that.

21 Q. Now, you said that Google is taking this DSID because --  
22 I think what you said was because Google has to know who the  
23 user is in order to check consent; right?

24 A. Yes. When they're setting up their consent check in this  
25 manner, to take the data and copy it first and then check for

1 consent, I think I've highlighted that there's another design  
2 pattern available, which is to check consent first before  
3 taking the data.

4 **Q.** Okay. So you would like to see Google use a different  
5 design pattern, but you don't deny that the purpose of this  
6 pattern is to check whether the user has sWAA on or off? You  
7 don't deny that?

8 **A.** No. I agree with you that Google is checking the position  
9 of the switches --

10 **Q.** You're not --

11 **A.** -- after they've taken the data and copied it, yes.

12 **Q.** You are not suggesting to this jury that in order to honor  
13 the user's WAA setting, Google should not check their consent  
14 settings at all? That's not something you're suggesting to  
15 them, is it?

16 **A.** I don't think I've said that.

17 **Q.** That would be absurd, would it not?

18 **A.** That's up to you, but I haven't suggested it.

19 **Q.** Now, you have been using Google Analytics, as we've  
20 discussed; and when you have looked at Google Analytics from  
21 the perspective of a user, you have said that Google doesn't  
22 show you any individual user information; right?

23 **A.** Yes, that's right.

24 **Q.** And you agree, in fact, that Google endeavors not to show  
25 its Google Analytics customers like you data about specific

1 users; right?

2 A. Yes, that's right.

3 Q. You've had clients, in your time working on computer  
4 problems, who have asked you, "Can you tell me exactly who's  
5 visiting my website," when they hire you as a consultant;  
6 right?

7 A. That's been a frequent request, yes.

8 Q. And what did you say to them?

9 A. We can't do that.

10 Q. Why not?

11 A. Because that -- Google Analytics doesn't work that way.  
12 They don't provide data about individual users.

13 Q. They wouldn't permit it; right?

14 A. That's right.

15 Q. And, in fact, at some point Google even took away your  
16 ability to see the keywords that people were using to reach  
17 your website; right?

18 A. Yes. That -- wow, that made a lot of search engine  
19 optimization people angry. They're still angry about that.

20 Q. And you were told that Google did that because they were  
21 trying to protect user privacy?

22 A. I think that that was the reason that Google cited, but  
23 I think there are people in the industry who maybe think there  
24 are other reasons. But this is very far afield. We're not  
25 going into it.

1 Q. Well, in your deposition, you didn't say, "This is very  
2 far afield." You just simply admitted -- in fact, I think you  
3 explained to me in a long monologue that this was very  
4 frustrating, but Google did it to protect user privacy. That's  
5 what you said, did you not?

6 A. Yes.

7 Q. Okay. Now, you do not believe that your use of  
8 Google Analytics has materially increased anyone's risk. You  
9 have said that; right?

10 A. Yes, I said that.

11 Q. You had tracking pixels on your own website at the time  
12 this case was filed?

13 A. Yes.

14 Q. They were on your website when we last met at your  
15 deposition?

16 A. Yes.

17 Q. And I asked you at your deposition: How can you square  
18 the plaintiffs' position in this case with the fact that you  
19 yourself were using Google Analytics on your website? You  
20 remember I asked you that?

21 A. Yes.

22 Q. And you said that you didn't believe that using  
23 Google Analytics on your website would materially increase  
24 anyone's risk. You said that?

25 A. Yes.

1 Q. Now, after I suggested to you at your deposition that it  
2 might be a problem that you're criticizing Google Analytics on  
3 the one hand and using it on the other, you removed  
4 Google Analytics from your website, did you not?

5 A. Sometime later, I decided that I didn't want to share my  
6 website visitor data with Google because I was getting the idea  
7 that Google could use that data against me, and I decided not  
8 to use that.

9 And, in fact, I've actually decided not to use a whole  
10 bunch of Google products. I've -- just for my own reasons,  
11 I've stopped using Gmail. I've stopped using Chrome. I'm  
12 using Proton Mail. I'm using the Vivaldi browser. I'm using  
13 DuckDuckGo. And I'm doing all right.

14 Q. You were deposed in the summer of 2023; right,  
15 Dr. Hochman?

16 A. Yes.

17 Q. You were hired for this case a couple of years earlier;  
18 right?

19 A. Yeah. There was -- I guess it might have been in 2022  
20 that I was hired.

21 Q. So for a year, you maintained Google Analytics on your  
22 website; right?

23 A. Yes.

24 Q. Then I deposed you?

25 A. Yes.

1 Q. And I suggested to you that it didn't look very good that  
2 you were using Google Analytics while criticizing it; right?

3 A. You said that, sure.

4 Q. I said that. And sometime after that, you went and you  
5 took it off your website? True or false?

6 A. That's true.

7 Q. When this case is over and the jury has done their work  
8 and these lawyers aren't paying you anymore, are you going to  
9 put Google Analytics back on your website?

10 A. Absolutely not.

11 Q. Dr. Hochman, you agree with me that Google Analytics is  
12 not showing app developers personally identifiable information;  
13 right? You've said that?

14 A. I've used it and I haven't seen that, so yes.

15 Q. Now, you are not -- just to be perfectly clear for this  
16 jury, you are not offering an expert opinion about what is or  
17 is not personally identifiable information; right?

18 A. Oh, yeah. I heard you use that term before in an  
19 objection. I wanted to clarify it. Thanks for the  
20 opportunity.

21 Q. Dr. Hochman, I'm sorry, but the time to clarify is with  
22 your counsel. I asked you a very simple question.

23 A. Okay.

24 Q. You are not offering an opinion in this case about what is  
25 or is not personally identifiable information?



1     **A.**    I'm not offering any legal opinions here because that's a  
2     legal term.

3     **Q.**    That's the jury's job to decide, not yours?

4     **A.**    I don't know about that. That's over my pay grade.

5     **Q.**    Now, you testified earlier today that you found email  
6     addresses in some of the data that you reviewed for purposes of  
7     this case; right?

8     **A.**    That's right.

9     **Q.**    I think you put up a slide.

10           Let's take a look at Dr. Hochman's Slide Number 43.

11           **THE COURTROOM DEPUTY:** Should this be published?

12           **MR. SANTACANA:** Yes. It's been published already to  
13     the jury. That should be fine.

14     **BY MR. SANTACANA:**

15     **Q.**    You recall your testimony when this slide was on the  
16     screen; right?

17     **A.**    Yes.

18     **Q.**    Now, did you find a lot of email addresses -- actually,  
19     just so we're consistent here, let's look at Slide -- no.  
20     I think I'm looking at 43, but maybe they gave you a different  
21     one.

22           That's fine. I saw one with an email. This one has a  
23     name.

24           I think you said the volume of data was enormous; right?

25     **A.**    Yes.

1 Q. Or maybe you said "huge." I don't know what word you  
2 used.

3 How does the volume of records that you found from this  
4 natural test that had an email address in it, how does that  
5 compare to the total volume of records in the data?

6 A. Oh, so it's great. I think Dr. Black actually helped me  
7 by compiling a statistic, but I think there was something  
8 like -- I don't know -- 19,000 records -- 19,000 records.  
9 There might have been just a small number that had email  
10 addresses. I think it might have been, like, maybe a few  
11 hundred records that had something -- let's just call it toxic  
12 data -- that had some of this toxic data in it.

13 Q. Would you agree with me that it was a tiny proportion of  
14 data that had an email in it?

15 A. Well, the only problem with it being a tiny proportion is  
16 that once it comes out in one record, then it links, and you  
17 can apply that email address to all the other records in the  
18 corpus that share an identifier with the one record that's been  
19 exposed.

20 Q. Is it your testimony, Dr. Hochman, that Google takes  
21 something like this and uses it to link records to other  
22 records that are not containing information like this?

23 A. Oh, the way that that would get linked is if some -- if  
24 there were a data breach and a few of the records have email  
25 addresses in them, then it's possible for the adversary to line

1 up the records and identify which ones relate to the same user.  
2 And then if they see one email address associated with the  
3 user -- let's say the user's got a million events stored. If  
4 one of those events leaks the email address, that blows the  
5 privacy on the other -- all the other ones.

6 **Q.** I'm going to ask my question again.

7 You are not offering any evidence here that Google  
8 attempts to reidentify users when toxic data makes its way to  
9 Google?

10 **A.** I haven't said that.

11 **Q.** Now, you understand that it is against Google's rules with  
12 Google Analytics for a developer to send an email address to  
13 Google; right?

14 **A.** Oh, yes. I understand that Google has rules, and with all  
15 rules, there's some non-compliance. And this is -- I  
16 understood that this is -- we're observing non-compliance in  
17 the wild, that there are a few apps that were doing this.  
18 I think one of them we observed was Career Karma, and the other  
19 one was the *Washington Post*.

20 **Q.** You are not opining in this case that Google is somehow  
21 taking advantage of the non-compliance of app developers who  
22 are sending information like this? You're not opining that;  
23 right?

24 **A.** No, I'm not saying Google's taking advantage of it. I'm  
25 just saying that this non-compliance introduces a risk into the

1 system.

2 Q. You have seen no evidence that Google does anything with  
3 toxic data that happens to make its way to Google in violation  
4 of its terms; right?

5 A. I haven't said that. I haven't said -- I haven't asserted  
6 that, no.

7 Q. You have seen no such evidence?

8 A. Let's just repeat -- could you repeat what you said  
9 before, just because I forgot what you were saying?

10 Q. Sure.

11 You've seen no evidence that Google does anything to use  
12 PII, like an email address, that makes its way to  
13 Google Analytics in violation of its terms?

14 A. I haven't seen anything to suggest that Google's using  
15 that PII.

16 Q. You haven't seen anything to suggest Google is  
17 interpreting this either; right?

18 A. I actually wish that Google would. I wish Google would  
19 recognize that this is an email address and reject it.

20 Q. Can you answer my question?

21 A. Yeah, I haven't seen Google applying a safeguard here.

22 Q. You haven't seen any evidence that Google attempts to  
23 interpret this and figure out that it's an email address and  
24 whose it is; right?

25 A. Yeah, I haven't seen them doing that.

1 Q. You also have done nothing to study how frequently this  
2 happens; right?

3 A. Right. I haven't done a statistical survey. This is just  
4 something -- this was like an incidental finding. We just  
5 accidentally found this happening. I think there were two  
6 sites I remember, Career Karma and *Washington Post*.

7 And then in our test app, we actually tried to do it  
8 ourselves to see if maybe it wasn't repeatable, but it was  
9 repeatable. We were also able to do the same -- cause the  
10 system to do the same behavior.

11 Q. So just to be totally clear with this jury, Google, by  
12 default, in Google Analytics, does not collect email addresses;  
13 right?

14 A. I'll just -- I want to be clear. It's in Google Analytics  
15 for Firebase, which is part of the Firebase SDK, and Google  
16 Mobile Ads SDK. Those products are not, by default, taking the  
17 email address in this form.

18 Q. Google's SDKs at issue in this case were not designed to  
19 collect email addresses; correct?

20 A. They're not the default -- they're not part of the default  
21 data that is collected.

22 Q. Nor does the default design result in the collection of  
23 names; right?

24 A. The default design is not to send the user's name, no.

25 Q. Nor does the default design result in the collection of

1 phone numbers; right?

2 A. Correct.

3 Q. Addresses; right?

4 A. Correct.

5 Q. Billing information?

6 A. Well, as far as addresses are concerned, just the default  
7 does collect location information, which can be very  
8 identifying. But it's not collecting the user's mailing  
9 address; it's not collecting billing information, no.

10 Q. Okay. I want to make sure I got your testimony very clear  
11 because we're going to come back to this.

12 Your testimony is that the location information that comes  
13 with Google Analytics data is very identifying? That's your  
14 testimony under oath?

15 A. Yes. If you have a sequence of location information, even  
16 if it's been approximated, that sequence forms an indication  
17 of -- that can be specific to a user.

18 Q. Okay. I'm glad that you made that clear.

19 You mentioned that Google Analytics for Firebase somehow  
20 also involves information about the interests of users. Do you  
21 recall that?

22 A. Yes.

23 Q. You have no idea how the interest information in the data  
24 that you reviewed was generated; right?

25 A. Well, I wouldn't put it that way.

1 Q. Well, you didn't disclose any such idea in your expert  
2 report, did you?

3 A. Just to be clear, that data, that interest information,  
4 somehow the app gets it. I'm not concerning myself with how  
5 the app got that information. But if the information is there  
6 in the app, Google Analytics for Firebase will extract it from  
7 the app and put it into that data bundle, and Google then takes  
8 that data bundle on its server and it starts, you know, copying  
9 it and processing it and doing everything that we've discussed.

10 So the thing that's happening is Google is taking that  
11 data from the phone. Now, how it got in there, I'm not saying  
12 how it got there.

13 Q. You do not know?

14 A. Well, I think that it's sort of not -- that's not my  
15 opinion of how it got there. It's just that the data, if it's  
16 in the app, Google Analytics for Firebase will collect that  
17 interest data by default and send it along.

18 Q. Okay. Now, I think you mentioned that Dr. Black, who  
19 responded to your expert report, did some math about this  
20 incidental amount of email addresses and names that comes  
21 through Google Analytics.

22 A. Yes.

23 Q. And just to put numbers on it, the incidental amount, he  
24 found that for one of the plaintiffs, 16,009 out of the 16,163  
25 entries in the data had no such toxic data in them; right?

1 A. So let's just do the math here.

2 Q. It's 0.95 percent.

3 A. No, but it's like 154 leaks occurred.

4 Q. Out of 16,163 entries? You don't -- I just -- my  
5 question --

6 A. No, I'm not disputing the math, but I'm pointing out --

7 Q. You don't dispute the math?

8 A. I'm pointing out that that's 154 leaks that should not  
9 have happened.

10 Q. Well, you have pointed out, actually, that the data in  
11 question is not representative of the data that would have  
12 applied to the class from 2016 to 2024; right?

13 A. I don't agree with that.

14 Q. You didn't say that in your deposition, that the data  
15 sample was not representative?

16 A. Oh, the data sample that we got from Google -- now I see  
17 what you're getting at.

18 Google provided us with a data sample for our plaintiffs.  
19 Okay? That's all that we could get from them. I couldn't get  
20 from them, like, a survey of, you know, 30,000 random people.  
21 It might have been nice, but that wasn't -- we weren't able to  
22 do that.

23 Q. So it's possible that the error rate or the non-compliance  
24 rate is even lower if you were to have representative data  
25 about what happened in the class period?



1   **A.**   As much as it could be lower, it also could be higher, and  
2   I will agree with you.

3   **Q.**   Okay.  Let's talk about personalized advertising.

4           Now, in your report and in your deposition, there's a back  
5   and forth about this term.  So, first, I just want to make sure  
6   we're all on the same page about what these terms mean.

7           You distinguish between two types of what you call  
8   targeting.  There's personalized ad targeting and then  
9   there's -- let's just call it other targeting.  You with me so  
10   far?

11   **A.**   Yeah.  I think I would just describe it -- let's make it  
12   really easy on everyone.

13   **Q.**   Sure.

14   **A.**   There's personalization of ads and there's targeting of  
15   ads.  Let's just call those two different things.

16   **Q.**   Personalization and targeting, we'll call them two  
17   different things.  That's fine.  We can do that.

18   **A.**   Okay.

19   **Q.**   Now, when we're talking about personalization of ads,  
20   that's like using a profile about a user that Google has that  
21   is something that Google can only do with data that was  
22   collected when sWAA was on; right?

23   **A.**   My understanding is that Google is using the sWAA-on data  
24   to personalize ads.  I think that I may have made the point  
25   that there's also a possibility of personalizing ads.  Like, if

1 a user is just totally logged out, if there's an account,  
2 Google doesn't know who that person is; but during that  
3 session, they can join up the action during that session. So  
4 there may be some personalization there; but if that person  
5 goes away and comes back, they're not connected up again maybe.

6 **Q.** And just to be clear, because I don't want there to be any  
7 confusion, this case is about people who are logged in with  
8 sWAA off. This is not a case about people who are logged out;  
9 right?

10 **A.** Right.

11 **Q.** Okay. So let's stick to the people who are logged in with  
12 sWAA off. Google knows they have sWAA off, and it does not use  
13 the data while sWAA is off to personalize advertising to them;  
14 right?

15 **A.** Okay. So now that gets to be a little bit of a thorny  
16 issue because there's actually two switches. I think you  
17 probably will cover this, so let me just say it now.

18 There's a switch called sWAA that controls whether or not  
19 the data is being collected, at least in my view of the world.  
20 And there's another switch called Google Ads Personalization,  
21 GAP, maybe another control, like Triple O, Opt Out of Ad  
22 Personalization. There's a couple of other controls that you  
23 can use to shut off ad personalization.

24 So my understanding of the interaction between these  
25 different controls is that the one set of controls is -- at

1 least I understand it is suggesting that you can control the  
2 collection of your app activity data from third-party apps, and  
3 the other controls allow you to decide whether or not Google is  
4 personalizing your ads.

5 So there may be some edge cases where someone, you know,  
6 turns the collection on for a while and there's some  
7 information there and then they turn the collection off. And  
8 if collection is off but personalization is on, I haven't seen  
9 anything to say that personalization wouldn't happen there.

10 Okay?

11 If you assume that someone's always had sWAA off, then  
12 there would be no data and there would be no personalization.  
13 So in that scenario, I would agree with you.

14 **Q.** And, Dr. Hochman, I do appreciate that a lot of this is  
15 complicated, and it's good for you to explain the complexity.  
16 I also want to make sure the jury understands the facts of the  
17 case, so I'm going to ask the question a little differently,  
18 and I think we'll be able to agree.

19 Google does not use sWAA-off data to personalize  
20 advertising; fair?

21 **A.** That's my understanding.

22 **Q.** You don't dispute that at all. You heard Mr. Monsees say  
23 that. You don't dispute that?

24 **A.** I don't think I'm disputing that.

25 **Q.** So to take an example, if Google Analytics sends to

1 Google Analytics for Firebase -- my apologies -- sends to  
2 Google an in-app purchase event -- okay? -- and it says a  
3 purchase was made by a particular device -- you with me so far?

4 **A.** Yes.

5 **Q.** -- if the user's device -- excuse me -- if the user whose  
6 device sent the in-app purchase event had sWAA off, the fact  
7 that they made that purchase will not influence the ads that  
8 they see in the future; correct?

9 **A.** That's my understanding.

10 **Q.** So now let's talk about what you say is called targeting  
11 as opposed to personalization.

12 Targeting, fair to say, is a type of selecting an ad that  
13 does not depend on what the user has done in the past when they  
14 are logged in and they have sWAA off; correct?

15 **A.** Correct.

16 **Q.** What you call targeting includes, for example, a user who  
17 is looking at an app about sports and so they receive an ad  
18 about sneakers, not because in the past they have been  
19 interested in sneakers, but because right now in the moment,  
20 that sports app, one could infer, might benefit from sneaker  
21 ads; fair?

22 **A.** Yes. That's a good example of contextual targeting.

23 **Q.** Contextual targeting is where I was going next. That's  
24 what Google calls it; right?

25 **A.** Yes.

1 Q. Okay.

2 MR. SANTACANA: Can we put up Google's Interrogatory  
3 Number 15, page -- Interrogatory Response, page 9, please,  
4 Brooklyn?

5 And, actually, you know what? I'm going to just move on.  
6 Thank you.

7 BY MR. SANTACANA:

8 Q. Dr. Hochman, you mentioned data breaches earlier today.  
9 You recall that?

10 A. Yes.

11 Q. And you say that in your mind, there is a privacy risk  
12 that data, like the toxic data that we saw that is sent to  
13 Google, could be hacked or leaked; right? That's a privacy  
14 risk?

15 A. Yes. There's always some risk. There's no system that's  
16 perfectly secure.

17 Q. You do not contend that a single bit or byte of the data  
18 that was sent to Google during the class period for these  
19 hundred-million users leaked out of Google? That's not  
20 something that you are claiming in this case; right?

21 A. That's not something I've said.

22 Q. You are not here to testify that there was a data breach  
23 of the data in question in this case; right?

24 A. Correct.

25 Q. Your testimony is that, hypothetically, there could be a

1 data breach; right?

2 **A.** I'm pointing out that there is a risk to the user when  
3 data is retained if the user did not agree to that data being  
4 retained. Because no system is completely risk free, and  
5 everyone should be able to understand the risks, even if those  
6 risks are small, and should be able to make their personal  
7 choice.

8 **Q.** You're not suggesting at all in this case, Dr. Hochman,  
9 that Google has promised its 3 billion users absolute  
10 perfection with respect to data security? You're not  
11 suggesting that, are you?

12 **A.** No. I'm not making any ridiculous suggestions, no.

13 **Q.** It would be ridiculous to expect that?

14 **A.** I think that everyone understands that perfect data  
15 security is impossible. Maybe I've used too strong a word. I  
16 shouldn't have said "ridiculous."

17 Perfect data security is impossible. Everyone in the  
18 field knows that.

19 **Q.** You have also not seen any evidence in this case that any  
20 user in this class had their identity stolen as a result of the  
21 activity data in question; right?

22 **A.** I have not asserted that.

23 **Q.** You haven't seen any evidence in this case that any  
24 criminal has in some way hacked or in other ways defrauded  
25 somebody in connection with the data that was -- that is at

1 issue in this case?

2 A. No.

3 Q. Nor have you seen any evidence that anybody inside of  
4 Google violated the policies we heard about yesterday and  
5 reidentified a user who had sWAA off? You have seen no  
6 evidence of that; right?

7 A. I'm not presenting any evidence of that.

8 Q. Now, Dr. Hochman, you consider yourself an expert in the  
9 fields of technology and security; right?

10 A. Yes.

11 Q. As part of your work as an expert in these fields, you  
12 stay up-to-date on what's going on; right?

13 A. I try to.

14 Q. You follow developments in the law; right?

15 A. Yes. I follow -- I follow a lot of media, yes --

16 Q. You follow --

17 A. -- related to this field.

18 Q. You follow developments in the privacy space; right?

19 A. Yes.

20 Q. Google is not the only entity in the world that uses the  
21 term "pseudonymous data"; right?

22 A. I think that other people would use that too.

23 Q. You used it in your dissertation this year when you got  
24 your Ph.D.; right?

25 A. Yes.

1 Q. It's also been used by the United States government, has  
2 it not?

3 A. Yes.

4 Q. In the context of discussing how to protect user privacy,  
5 the government has recommended using pseudonymous data, has it  
6 not?

7 A. Yes. And, of course -- well, I'm going to summarize it  
8 really quickly for you. The devil is in the details.

9 Q. Okay. A variety of states in the United States have laws  
10 that suggest the use of pseudonymous data to protect user  
11 privacy, don't they?

12 A. Yes.

13 Q. The Department of Health and Human Services encourages  
14 people who deal in medical records to use pseudonymous data to  
15 protect their identities, doesn't it?

16 A. Well, maybe you should just show me the record because I  
17 don't remember that off the top of my head.

18 Q. That's okay. I think I got it.

19 You're not an economist; right?

20 A. No.

21 Q. Now, you agree with me that for Google to serve ads, it  
22 must say something to the advertiser about the fact that the ad  
23 was served; right?

24 A. Yeah. Google has to at least send the advertiser a bill.

25 Q. In fact, it is an industry standard that Google must



1 comply with that requires Google to report to advertisers the  
2 fact that it served an ad; right?

3 A. Yes.

4 Q. The Media Ratings Council requires Google to report when  
5 it shows ads to users; right?

6 A. Yes.

7 Q. Otherwise Google could be accused of fraud, billing people  
8 for ads that were never shown; right?

9 A. Correct.

10 Q. So it has to keep a receipt that it did it, does it not?

11 A. Yes.

12 Q. Now, Google is not required to count how many ads it shows  
13 using personally identifiable information. It can do it with  
14 de-identified data; right?

15 A. I would assume so.

16 Q. Now, the requirements of keeping receipts of advertising,  
17 you have said, come from the 1960s, when Congress became  
18 concerned that there had been a lot of lying in advertising on  
19 television, radio, and newspapers; right?

20 A. Yes, that's correct.

21 Q. And Congress's concern, in your words, moved from that  
22 space to the online space; right?

23 A. Yes.

24 Q. And you have testified that Google Analytics is part of  
25 the move that Congress had wanted. It helps to make sure that

1 online there is no fraud with respect to the serving of ads;  
2 right?

3 **A.** Okay. So Google Analytics is not exactly an ad fraud  
4 solution. There are others. But Google itself is certified by  
5 the Media Rating Council as a -- and Google does do detection  
6 of ad fraud and they do proactive -- I mean, Google does work  
7 in this area.

8 **Q.** And you like that Google does that as somebody who runs a  
9 business and advertises, do you not?

10 **A.** Very much.

11 **Q.** You like that Google tries to maintain a clean ad network;  
12 right?

13 **A.** Yes.

14 **Q.** You like that they try to protect you, as an advertiser of  
15 your expert witness services to law firms, from ad fraud;  
16 right?

17 **A.** Sure.

18 **Q.** And when Google is concerned that ad fraud might be going  
19 on, it's your testimony in your deposition that they actually  
20 proactively reach out and investigate it, which is another  
21 thing that you like about it; right?

22 **A.** Yes.

23 **Q.** Google, in fact, has automatic systems that use  
24 de-identified data to try and prevent ad fraud; right?

25 **A.** Google has automated systems that do try to prevent ad

1 fraud, yes.

2 Q. One way that Google accomplishes its ad fraud detection is  
3 to use device ID, a pseudonymous identifier, to make sure, just  
4 to give an example, that some bot is not using the same device  
5 to hit ads a million times in order to make more money; right?

6 A. That's true.

7 Q. Now, as you sit here now, you cannot say whether Google  
8 would have to completely stop its ad fraud detection if the  
9 plaintiffs are right about what Web & App Activity should be  
10 doing?

11 A. Well, what I think is that either Google would have to  
12 change the way they're handling data to comply with the  
13 promises that they're -- or the impressions, let's say, that  
14 they're giving to people about how the data will be handled.  
15 The way the data is being handled needs to be brought into  
16 alignment with the way it's being described. That's really my  
17 position. It has to be brought into alignment, I think.

18 Q. Okay. But that's not what I -- what I asked you,  
19 Dr. Hochman.

20 What I asked you is: If the plaintiffs are right about  
21 this case, you cannot say whether Google could continue the ad  
22 fraud detection activity that it does with pseudonymous data;  
23 right?

24 A. Oh, well, like I was just saying, my position is that if  
25 Google, hypothetically, was ordered to bring this into

1 alignment, there are ways they could do it. And I don't know  
2 that it would mean they couldn't do their ad fraud detection  
3 anymore. It just might mean that they have to update the  
4 disclosures, or maybe they can do the ad fraud detection in a  
5 different way. That's a different question. That's, you know,  
6 not what I was tasked with investigating.

7 **Q.** Suffice it to say, though, if the Web & App Activity  
8 button worked the way these plaintiffs say it should work, if  
9 it worked that way and it prevented the collection of all data  
10 whatsoever, the ad fraud detection would be impossible, would  
11 it not?

12 **A.** Well, no. I don't think ad fraud detection would be  
13 impossible because Google would still be collecting data from  
14 people with WAA and SWAA on.

15 And then as far as WAA and SWAA off, I don't know how  
16 Google would have to deal with that. That's -- that's  
17 another -- that's a business problem you and your client may  
18 have to address at some point.

19 **Q.** Well, if it worked the way these plaintiffs say it should  
20 work, wouldn't I just have to turn SWAA off, and then I could  
21 defraud Google and advertisers freely?

22 **A.** You know, that's a -- that's a problem that somebody will  
23 have to think about how to reconcile the promises that Google  
24 is making to users or the representations versus the way its  
25 systems are behaving, and I'm not here to tell Google how to --

1 how to fix its systems.

2 **Q.** Let me ask you something. You testified earlier that  
3 Google uses SWAA-off data to train AI. You remember that?

4 **A.** Well, I said that Google's SWAA-off data is going into  
5 this pool of data, and it's going downstream and being used in  
6 lots of places. And I believe that in the Google responses to  
7 our technical questions, I believe they identified AI  
8 consumption of the data as one of the uses downstream.

9 **Q.** Okay. I want to make sure that your testimony is very  
10 clear, Dr. Hochman. Okay?

11 Do you have any evidence to suggest that Google Analytics  
12 data at Google was provided to the AI Department at Google that  
13 makes AI products like Gemini?

14 **A.** Oh, I'm referring to other AI. I'm referring to things  
15 like the automated bidding in AdWords. There's a lot of  
16 machine learning in Google's systems. I -- I'm not opining  
17 about Gemini.

18 **Q.** Okay. So when you were -- when your counsel put AI on  
19 that slide, what you meant was machine learning about how to  
20 run an ad auction?

21 **A.** That's an example of one thing. It could mean other  
22 things within Google Systems, but Google has deployed AI in a  
23 bunch of different ways.

24 **Q.** You're not suggesting that the AI that all of us have been  
25 talking about non-stop for the last year and a half, you're not

1 suggesting that has anything to do with this data; right?

2 **A.** I'm thinking about AI more generally. I'm not making an  
3 assertion about OpenAI or Perplexity or Gemini. But I don't  
4 know. Maybe they would use the data for that. Who knows?

5 You know, if you collect data, data is very valuable; and  
6 if you have it, you might find a use for it in the future.

7 **Q.** Well, this case is not about what Google might do in the  
8 future, Dr. Hochman. This is a case about whether Google is  
9 liable for something that happened between 2016 and 2024.

10 So let me ask you this. Let me ask it this way: If my  
11 client, Mr. Ganem, were to testify that Google Analytics data  
12 has never been provided to the AI Department at Google, would  
13 you have any basis in fact to dispute that?

14 **MR. MAO:** Your Honor, it's argumentative and attorney  
15 testimony.

16 **THE COURT:** Overruled.

17 **THE WITNESS:** You keep slipping back into  
18 Google Analytics, but we're talking about Google Analytics for  
19 Firebase, you know, the data that's being taken from the  
20 Firebase SDK and from Google Mobile Ads SDK. So regarding that  
21 data, I'm not asserting that that data has been given to  
22 Gemini.

23 **BY MR. SANTACANA:**

24 **Q.** Now, you testified earlier about batteries. Do you  
25 remember that?

1 A. Yes.

2 Q. You're not a hardware expert; right?

3 A. I have some experience in mobile hardware development and  
4 sales earlier in my career, and I am familiar enough to know  
5 how batteries work in mobile phones.

6 Q. You are not here testifying as a hardware expert. Am I  
7 correct about that?

8 A. I mean, to the extent that hardware is relevant, I  
9 understand computer hardware.

10 Q. Dr. Hochman, this is your expert report?

11 A. Yes.

12 Q. Anywhere in this report did you disclose any study that  
13 you did with respect to how Google Analytics for Firebase  
14 affects batteries?

15 A. I haven't said anything about a study in my report.

16 Q. I don't -- I don't understand your answer.

17 My question is: In this report, is there anything about a  
18 study that you conducted, a scientific study, any type of  
19 study, an observational study, just using your phone for a  
20 little bit and seeing how it goes, where you were quantifying  
21 the effect of Google Analytics for Firebase on batteries?

22 A. I haven't put that in my report. I think the issue came  
23 up in my deposition, and I think it's also been addressed in  
24 Google's responses to our technical questions.

25 THE COURT: It's about time for our break. How much

1 longer?

2 **MR. SANTACANA:** This is a good time.

3 **THE COURT:** Okay. Members of the jury, remember my  
4 admonitions to not discuss this amongst yourselves or with  
5 anyone else.

6 And we'll take a break and be back here at 25 after.

7 (Recess taken at 12:07 p.m.)

8 (Proceedings resumed at 12:27 p.m.)

9 (Proceedings were heard out of the presence of the jury.)

10 **THE COURTROOM DEPUTY:** Please remain as you are.  
11 Court will come to order.

12 **THE COURT:** Doctor, you can come back to the stand.  
13 Okay. Ready to bring them out?

14 **MR. SANTACANA:** Yes, Your Honor.

15 **THE COURT:** Okay.

16 (Proceedings were heard in the presence of the jury.)

17 **THE COURT:** The jury is present.

18 Mr. Santacana.

19 **BY MR. SANTACANA:**

20 **Q.** Dr. Hochman, we left off talking about batteries. Do you  
21 remember that?

22 **A.** Yes.

23 **Q.** I want to make sure your testimony is completely clear.  
24 You testified, when your counsel was questioning you, about the  
25 degradation of batteries in phones as a result of the



1 transmission of data from those phones. Do you remember that?

2 **A.** Yes.

3 **Q.** In your report, you documented the things you did to  
4 prepare your opinions for this case; right?

5 **A.** Yes.

6 **Q.** And in that report, you did not document anything that you  
7 did to measure the degree, if any, of battery degradation  
8 caused by Google Analytics for Firebase. Am I correct about  
9 that?

10 **A.** Correct.

11 **Q.** Since you wrote this report, you have not disclosed to us  
12 any work that you have done to try and measure the degree of  
13 battery degradation, if any, caused by Google Analytics for  
14 Firebase. Am I right about that? You haven't disclosed any  
15 such measurement work; right?

16 **A.** I haven't disclosed that.

17 **Q.** The installation of Google Analytics for Firebase in an  
18 app is up to the app developer to install; right?

19 **A.** Yes.

20 **Q.** The installation of Google Mobile Ads SDK is up to the app  
21 developer to install; right?

22 **A.** Yes.

23 **Q.** The app developer decides whether and how much data to  
24 cause their app to transmit out of a phone; fair?

25 **A.** The app developer, that's an interesting question. I

1 have -- I don't know which app developer you're talking about.

2 It's a categorical statement. So I would just say that the app  
3 developer designs their app and it works. You know, they  
4 design it.

5 Q. The app developer designs the app, not Google; right?

6 A. Google designs the SDK.

7 Q. Google designs the SDK. It's up to the app developer to  
8 put it in the app; right?

9 A. Yep, and then Google gets the data from the SDK.

10 Q. And if the app developer were to choose not to install the  
11 Google Analytics SDK, then the battery degradation you were  
12 speculating about earlier wouldn't happen; right?

13 A. Yes.

14 Q. There's nothing that Google is doing to cause the battery  
15 degradation. It is the app developer who has control over  
16 whether Google Analytics for Firebase is installed. True or  
17 false?

18 A. Well, you've sort of said a few things together. And what  
19 I would point out is, if someone switches SWAA off, there --  
20 according to my baseline, that is the data will not be taken  
21 from their phone. If it worked according to the baseline, then  
22 their battery would work better. The user would have a control  
23 over whether that data is taken from their phone or not if it  
24 worked according to the baseline.

25 So, in fact, the user would have some control if the

1 switch worked according to the baseline because they could say,  
2 "Stop this data transmission."

3 Q. Dr. Hochman, I did not ask you about SWAA or the user and  
4 how much control they have. What I asked you was whether  
5 Google has control over whether Google Analytics for Firebase  
6 is installed in any particular app.

7 A. The app developer chooses to install that SDK.

8 Q. It is outside of Google's control whether those data  
9 transmissions occur or don't occur? It's up to the developer  
10 to install the SDK; right?

11 A. I disagree.

12 Q. Okay. Well, you can talk to your counsel about why then.

13 Do you have any basis in evidence to suggest to this jury  
14 that the degree of battery degradation that you were  
15 speculating about earlier that you have done nothing to measure  
16 is anything greater than negligible?

17 A. I have evidence that it's greater than negligible.

18 Q. You have evidence. Did you disclose that evidence to us  
19 in this case?

20 A. Yes. It's listed in my documents considered.

21 Q. So do you have -- do you have it here in the courtroom?

22 A. Yeah. I think somewhere we've got -- it's the Google's  
23 answers to our technical questions. Google themselves raised  
24 the issue of bandwidth and battery life. When talking about  
25 the use of a hit bundle, Google said they use the hit bundle to

1 reduce the impact on the user's device. So the fact that  
2 Google is speaking about it and thinking about it indicates  
3 that this is significant.

4 **Q.** So I think you're answering a different question than I  
5 asked, but that's helpful.

6 You understand that Google has actually designed these  
7 SDKs to minimize the impact on battery life; right?

8 **A.** At least on the Android device, I think Google can do  
9 that. I don't think that it works that way on iOS.

10 **Q.** Apple doesn't let them do that in the same way; right?

11 **A.** Whatever it is, it's not available on iOS.

12 **Q.** So Google attempts to minimize the impact on battery life.  
13 And my question is: Do you have any evidence that the impact  
14 on battery life is anything greater than negligible? Do you  
15 have evidence?

16 **A.** Well, the fact that Google worries about it is an  
17 indication that the battery life impact -- I mean, if Google is  
18 doing something to mitigate it on Android, okay. Google can't  
19 do anything to mitigate it on iOS. So let's just leave that  
20 there because that's -- that's the situation.

21 **Q.** I don't think I will leave it there, Dr. Hochman. I  
22 really do need you to answer this question. Okay? Because you  
23 spent some time speculating about batteries and bandwidth and  
24 how harmful it is, which isn't in your report. So I need you  
25 to answer the question.

1 Have you done anything to measure whether the impact on  
2 battery life is anything greater than negligible?

3 **A.** I haven't done any analysis beyond what I've already told  
4 you about.

5 **Q.** Thank you.

6 Now, Google is not the only company that offers analytics  
7 SDKs for third-party apps; right?

8 **A.** Correct.

9 **Q.** There is a robust market of analytics SDKs available for  
10 app developers to use; right?

11 **A.** Well, there's a market, yes.

12 **Q.** Facebook has an analytics SDK; right?

13 **A.** Yes.

14 **Q.** Used in a lot of apps, is it not?

15 **A.** Yes, Facebook has an SDK.

16 **Q.** Adobe has an analytics SDK that's used in a lot of apps;  
17 right?

18 **A.** Yes.

19 **Q.** LinkedIn has an SDK that's used?

20 **A.** I believe so.

21 **Q.** AppsFlyer is a company that offers an analytics SDK;  
22 right?

23 **A.** Yes.

24 **Q.** Now, you have done no work to compare Google's SDK to  
25 those of the competitors; right?

1     **A.**    I haven't done a competitive analysis.

2     **Q.**    But you don't deny that many apps use multiple analytics  
3     SDKs in the same app; right?

4     **A.**    Apps sometimes do use multiple SDKs.

5     **Q.**    Frequently they use multiple SDKs.  Wouldn't you agree  
6     with that?

7     **A.**    I haven't determined the frequency, so I just --

8     **Q.**    You don't know?

9     **A.**    I haven't expressed an opinion on that.

10    **Q.**    Now, when an app uses multiple SDKs for analytics in their  
11    app, that means that event-level data can be sent to Google but  
12    also to the other entities whose SDKs have been installed in  
13    the app; isn't that true?

14    **A.**    Potentially that could happen.

15    **Q.**    That could include multiple parties receiving the device  
16    ID of that device; right?

17    **A.**    Yes.

18    **Q.**    Okay.  Let's use the first open event as an example.  If a  
19    user first opens an app after they have installed it and that  
20    first open event triggers on Google Analytics, the same event  
21    might also trigger on the Facebook SDK if it's installed;  
22    right?

23    **A.**    Conceivably, yes.

24    **Q.**    Does Facebook have a WAA-off button that separates the  
25    data from a user's Facebook ID?

1     **A.**    I haven't investigated the Facebook controls. But, again,  
2     this case is about Google. It's not about other people.

3     **Q.**    Sure, but I'd like to understand if these other analytics  
4     providers -- this case is also about the expectation of  
5     privacy, and I'd like you to tell the jury if these other  
6     analytics providers are affording their -- the users that they  
7     have, like Facebook and its users, the opportunity to separate  
8     the analytics data from the user's Facebook ID. Do you know,  
9     one way or another, whether Facebook has such a button?

10    **A.**    I'm not aware of Facebook having a WAA or SWAA control of  
11    their own.

12    **Q.**    Now, I want to clarify some of the other limits of your  
13    opinion just so we are all on the same page.

14            You're not offering an opinion in this case about whether  
15    or not Google committed any invasion of privacy; right?

16    **A.**    I'm offering an opinion about the fact of what happened,  
17    and that sounds like a legal conclusion, which is for somebody  
18    else to make.

19    **Q.**    You're not offering such an opinion?

20    **A.**    I'm just saying what happened and the circumstances around  
21    it that I can speak to as facts.

22    **Q.**    You're not offering an opinion about whether Google has  
23    violated any law; right?

24    **A.**    That's a legal opinion, no.

25    **Q.**    You're also not offering any opinion about what Google did

1 or did not intend to do. Am I right about that?

2 **A.** I can talk about what Google did and didn't do; and as far  
3 as intentions, I think people would have to make inferences  
4 about that.

5 **Q.** That's the jury's job, to decide what Google intended;  
6 right?

7 **A.** I think so.

8 **Q.** You're also not offering any opinion about what Google's  
9 consumers expected when they read these disclosures; right?

10 **A.** Correct.

11 **Q.** I think you talked a little bit about your personal  
12 expectations, but you're not offering an opinion about what  
13 regular people expect when they read it; right?

14 **A.** Yeah. I'm only offering an opinion about what my baseline  
15 was for testing.

16 **Q.** Now, you talked earlier about whether users have the  
17 ability to delete data that is collected when SWAA is off. Do  
18 you remember that?

19 **A.** I'm not sure. Which are you referring to?

20 **Q.** You testified earlier -- I know it's been a little while,  
21 but you testified earlier that users are not given the  
22 opportunity to delete SWAA-off data by Google. Do you remember  
23 that?

24 **A.** Oh, right, yes, because it's not there in their activity  
25 center.



1 Q. Do you use YouTube at all?

2 A. Do I use YouTube? Not very much.

3 Q. You've been on it before?

4 A. Yes.

5 Q. You know there's a watch counter at the bottom of it;  
6 right?

7 A. At the bottom of the video?

8 Q. Yeah. It shows number of views?

9 A. Sure.

10 Q. You've seen that before?

11 A. Yes.

12 Q. You know that Google is counting the number of views;  
13 right?

14 A. Sure.

15 Q. And you know that in order to do -- just as a computer  
16 scientist, you know in order to do that accurately, Google has  
17 to make sure no one is committing fraud on YouTube and viewing  
18 a bunch of times; right? So they are making sure that a  
19 particular device actually viewed the video; fair?

20 A. Again, that's -- that's not something I've investigated  
21 here, so I'll believe you if you want to say that's what  
22 they're doing. I'm not going to dispute you.

23 Q. Well, can you imagine, in your mind, as a computer  
24 scientist who works in Internet marketing, that Google wouldn't  
25 attempt to make sure that the view counter at the bottom of the

1 YouTube video is accurate?

2 **A.** I will happily take it on your word that they're doing  
3 that.

4 **Q.** Is it your position that when sWAA is off, a user should  
5 have the ability to delete the data that Google is using to  
6 count the number of views on a YouTube video?

7 **A.** Well, that's an interesting question because the data of  
8 the count seems like an aggregate statistic, where Google might  
9 just receive a signal that says plus one, someone watched the  
10 video.

11 **Q.** No, we just agreed that doesn't work, Mr. Hochman. Plus  
12 one doesn't work because you've got to make sure people are not  
13 defrauding YouTube; right?

14 **A.** Well, this is the thing, if Google had to save that data  
15 to keep its systems working, then why doesn't it -- I haven't  
16 seen them say that plainly anywhere on the privacy pages. I  
17 don't see anything there. I haven't seen anything which said,  
18 "Hey, for security we need to keep certain data. Just be alert  
19 that we're always keeping this data." I haven't seen that.

20 **MR. SANTACANA:** Your Honor, I move to strike the  
21 entire answer as nonresponsive.

22 **THE COURT:** Overruled.

23 **BY MR. SANTACANA:**

24 **Q.** Dr. Hochman, I didn't ask you that question. What I asked  
25 you is: You would agree with me that Google cannot simply plus

1 one the YouTube video counter because that would open it up to  
2 fraud, would it not?

3 **A.** Again, this is a -- this is a different problem. It's a  
4 different matter.

5 **Q.** You are a very smart man. I'm sure you can think through  
6 this one.

7 **A.** I'm not going to shoot from the hip and redesign Google's  
8 ad and video auditing systems while I sit here on the stand. I  
9 can't do that.

10 **Q.** Do you recall earlier today when you said that the  
11 location data that Google Analytics sends is very identifying?  
12 Do you remember you said that?

13 **A.** Yes, it could be.

14 **Q.** And I asked you to confirm that that was your under-oath  
15 testimony; right?

16 **A.** Yes, and I explained it in further detail.

17 **Q.** I also asked you, at the very beginning of this  
18 examination, if you discovered a mistake in your opinions, you  
19 would correct it; right?

20 **A.** Yes.

21 **Q.** Okay. You personally observed location data in the form  
22 of latitude and longitude in the data that you reviewed; right?

23 **A.** Yes.

24 **Q.** And you summarized the records that had latitude and  
25 longitude in them, and in that summary, you put in -- you put

1 in how many records were associated with each latitude and  
2 longitude; right?

3 **A.** Let's take a look at the document because I -- wow, there  
4 were a lot of documents in this case.

5 **Q.** Well, let me ask you this: Is it your testimony today  
6 that the latitude and longitude that you observed in, for  
7 example, Plaintiff Susan Harvey's pseudonymous log data that  
8 was provided by Google to you, that that latitude and longitude  
9 was very identifying? Is that your testimony?

10 **A.** Ah. So I just want to be clear. I'm aware that the  
11 latitude and longitude that Google eventually puts in the logs  
12 may be city level; in other words, it may not be precise. I'm  
13 aware of that.

14 The point I'm making is a little different point than the  
15 one you're, I think, trying to fix, which is that when you look  
16 at someone's history, when there is many, many readings --

17 **Q.** Uh-huh.

18 **A.** -- you can say the person was in this city, then they were  
19 in this city, and now they're in that city, and people have  
20 patterns. Over time, this pattern is identifying. You develop  
21 a unique signature of your travels. That's the point I'm  
22 making. It's a subtle point and it's a different point than  
23 one, I think, you're trying to get at.

24 **Q.** Well, I want to make sure it's clear for the jury because  
25 I don't think it was clear when you were testifying earlier.

1 The latitude and longitude data that is sent to Google  
2 when sWAA is off from these SDKs is the city center of the city  
3 the user's device is in; correct?

4 A. I absolutely agree with you. That's correct.

5 Q. It is the center -- if they're in Sacramento, like Susan  
6 Harvey was, that latitude and longitude tracks to the center of  
7 Sacramento; right?

8 A. Yes.

9 Q. She could be on the very edge of Sacramento and the  
10 latitude and longitude is the center of Sacramento?

11 A. Yes.

12 Q. So your testimony is that if she moves around cities a  
13 lot, someone who is a nefarious actor might somehow form a --  
14 find a pattern in that and figure out that it's Susan Harvey  
15 who did that. That's your testimony? That's what you're  
16 worried about?

17 A. Well, essentially the facts of it are, if you have a  
18 sequence of location data, and especially if you overlay it  
19 with some of the other rich data that's in the record, it can  
20 form a signature, an indicator of who that is.

21 Q. Now, I want to make sure you're very clear because you  
22 said it was very identifying, and I want to make sure the jury  
23 understands.

24 You are not saying here today that Google uses the data  
25 from these SDKs to figure out where devices are or to whom they

1 belong, when sWAA is off, based on the city center that is in  
2 that data packet? You haven't seen evidence that Google is  
3 taking steps to do that; right?

4 **A.** No.

5 **Q.** Okay. Now, in the course of your work analyzing all of  
6 the data in this case, you actually found no evidence that  
7 Google has ever joined together, in the same log, a user's  
8 device ID and that user's GAIA ID?

9 **A.** I'm just thinking if there may be an exception to that. I  
10 mean, the key thing is that I haven't seen all the logs that  
11 Google keeps.

12 **Q.** I don't think that is the key thing, Dr. Hochman. The key  
13 thing is that I asked you a very specific question and you  
14 didn't answer it. So I'm going to ask it again.

15 You have found no evidence that Google has ever joined  
16 together, in the same log, a user's device ID and their GAIA  
17 ID; correct?

18 **A.** I don't think I've -- I don't recall whether I found that  
19 or not, but I don't recall having found it.

20 **Q.** And you also found no evidence that Google actually did  
21 join sWAA-off data together with a GAIA ID, no evidence of  
22 that?

23 **A.** I understand that Google claims to have a policy against  
24 doing that.

25 **Q.** In fact, in your words, Google actually has the best

1 intentions of keeping that data apart. You've said that under  
2 oath; right?

3 **A.** I think I said something, but we should probably look at  
4 what exactly I said.

5 **Q.** Do you doubt -- based on your review of the design of  
6 Google's systems, the consent check on different servers, the  
7 separation of pseudonymous data, do you doubt that Google's  
8 design is there to separate GAIA ID from analytics data when  
9 sWAA is off?

10 **A.** My understanding is that Google is attempting to separate  
11 the data. At the same time, that's at the downstream point.  
12 But at the same time, when the data is actually collected by  
13 Google, all of the data, as it comes in, Google knows exactly  
14 who that is at the time it's being taken and copied before even  
15 the consent check is done. And that, I think, is important to  
16 keep in mind.

17 **MR. SANTACANA:** Your Honor, I move to strike  
18 everything in that response beginning with the phrase "At the  
19 same time."

20 **THE COURT:** Overruled. These questions are --  
21 overruled.

22 **BY MR. SANTACANA:**

23 **Q.** Dr. Hochman, you were asked earlier if Google is able to  
24 reidentify the user using sWAA-off data. Do you recall that  
25 question?

1     **A.**    Yes.

2     **Q.**    If Google is able to, and you said absolutely. Do you  
3     remember that?

4     **A.**    Yes.

5     **Q.**    You are not giving this jury the opinion that Google has  
6     ever, in fact, reidentified the user; right?

7     **A.**    In terms of has Google done that? I don't have -- I don't  
8     say that Google has done that. Google says that they don't,  
9     and that's where I have to leave it.

10    **Q.**    You also said there is nothing technically preventing  
11    Google from relinking all of this data together. Do you  
12    remember saying that?

13    **A.**    Yes.

14    **Q.**    Now, in order to relink all of this data together, which  
15    you say is technically possible, would you agree with me that  
16    to do that, Google would have to change the way its systems  
17    work? That is not how they work now.

18    **A.**    Okay. So you're asking me to make a categorical statement  
19    about how all Google systems work, which I haven't observed.  
20    So I'm not going to contradict you, but I'm not going to  
21    confirm your assertion either.

22    **Q.**    Well, you made a categorical statement when you said that  
23    nothing is technically preventing Google from relinking all of  
24    this data. You remember saying that?

25    **A.**    Yes. The data, by its nature, by being rich data, full of



**HOCHMAN - REDIRECT / MAO**

1 identifiers and full of details about the person, lends itself  
2 to reidentification, and preventing reidentification is a very  
3 hard problem. And as a result, my opinion is that nothing  
4 stops Google from reidentifying it.

5 **Q.** But Google hasn't done it. You're just saying it's  
6 technologically possible.

7 **A.** Well, I mean, I also observe that Google has a policy  
8 against doing it, and one has a policy because one is trying to  
9 prevent something from happening that could happen. If it was  
10 impossible, then there would be no need for a policy. They  
11 would just -- it would never happen.

12 **MR. SANTACANA:** I move to strike the answer as  
13 nonresponsive, Your Honor.

14 **THE COURT:** Overruled.

15 **BY MR. SANTACANA:**

16 **Q.** Dr. Hochman, you are not offering the opinion in the case,  
17 I want to be very clear, that Google has actually relinked  
18 sWAA-off data; right?

19 **A.** I'm not offering the opinion that Google has relinked  
20 sWAA-off data with the GAIA data.

21 **MR. SANTACANA:** I have no further questions,  
22 Your Honor.

23 **REDIRECT EXAMINATION**

24 **BY MR. MAO:**

25 **Q.** Good afternoon, Dr. Hochman. I will try to make this

1 quick.

2 You were just asked a number of questions about battery  
3 depletion.

4 Can I put up the battery depletion interrogatory just so  
5 we can put that into the record?

6 Can you -- have you seen this interrogatory response  
7 before?

8 **A.** I have.

9 **Q.** Did you consider this interrogatory response for the  
10 purposes of rendering your opinion in this case?

11 **A.** Yes.

12 **Q.** And where in this interrogatory response does it tell you  
13 that battery depletion is an issue for Google when it's  
14 collecting SWAA-off data, notwithstanding SWAA button being  
15 off?

16 **A.** Sure. Let's look at the second paragraph [as read]:

17 "For Android apps with Google Play services  
18 enabled, GA for Firebase data is collected from all  
19 apps into a central file called App Measurement DB,  
20 which is periodically uploaded to Google's servers.  
21 Google does this because it saves battery for users  
22 whose devices would otherwise be initiating more  
23 uploads every day. On iOS devices this is not  
24 possible, so each GA for Firebase-enabled app  
25 periodically transmits the data to Google's servers

1 individually."

2 **Q.** How does this response, on Google's response to  
3 Interrogatory Number 1, a sworn statement, how does this show  
4 battery depletion?

5 **A.** It shows that battery depletion is something that they  
6 have to think about because it's material. It's meaningful or  
7 they wouldn't have had to talk about it here when they  
8 explained how their system works.

9 **Q.** Moving on from this, if we could go to Exhibit 72, slide.

10 **THE COURTROOM DEPUTY:** Did you say Exhibit 172?

11 **MR. MAO:** Sorry. PX72, yes.

12 **THE COURTROOM DEPUTY:** That's been admitted; right?

13 **MR. MAO:** That's been moved into evidence, yes.

14 **BY MR. MAO:**

15 **Q.** You were asked a number of questions about Google Account  
16 and also personal information. Okay?

17 I believe that when we were talking about personal  
18 information, we were trying to figure out whether or not the  
19 type of data specified under this definition of "personal  
20 information" was something which you actually saw in Google  
21 systems. Do you recall that?

22 **A.** Yes.

23 **Q.** Okay. Looking at the type of data with the type of IDs in  
24 the system, is there anything within the pseudonymous IDs, the  
25 Google pseudonymous IDs, that does not fulfill the definition

1 of "personal information" on a technical level?

2 **A.** No.

3 **Q.** And why is that, Dr. Hochman?

4 **A.** Because all of that information, Google could link it back  
5 to the user if they decided to do so.

6 **Q.** Under this definition, is there anything from this  
7 definition that requires Google to say that the only thing that  
8 personally identifies you is the GAIA ID?

9 **A.** No.

10 **Q.** The other IDs we talked about -- Google's device ID, the  
11 app instance ID, and other IDs which you enumerated -- can  
12 those things be things in which Google decides to personally  
13 identify you?

14 **A.** Yes.

15 **Q.** And, in fact, Google does that for the purposes of ad  
16 measurements; isn't that correct?

17 **A.** Yes. When they collect data in certain logs for ad  
18 activity, they do link these up in order to count conversions  
19 and to do ad attribution. I talked about that earlier.

20 **Q.** And you haven't actually seen all of the logs which Google  
21 has on the plaintiffs; isn't that correct?

22 **A.** Correct. There's more that's unseen.

23 **Q.** Right. And defense counsel accused you of undersampling,  
24 but the fact is that you didn't get that which you asked for;  
25 isn't that correct?

## HOCHMAN - REDIRECT / MAO

1           **MR. SANTACANA:** Objection, Your Honor.

2           **MR. MAO:** He opened the door, Your Honor.

3           **THE COURT:** I'm going to sustain that objection.

4           Go ahead.

5           **BY MR. MAO:**

6           **Q.** Okay. Did you get all the logs which you requested?

7           **A.** No.

8           **MR. SANTACANA:** Objection, Your Honor.

9           **THE COURT:** Yeah, don't.

10          **MR. MAO:** Okay.

11          **THE COURT:** What was discovered in the discovery  
12 process is not for this witness.

13          Go ahead.

14          **BY MR. MAO:**

15          **Q.** Were there other logs that you -- that would have been  
16 relevant to your investigation?

17          **A.** Yes.

18          **Q.** Were you able to get your hands on those?

19          **MR. SANTACANA:** Objection, Your Honor.

20          **THE COURT:** Don't ask those questions. The last  
21 question was appropriate, not this one.

22          **MR. MAO:** Okay. Yes, Your Honor.

23          **BY MR. MAO:**

24          **Q.** Moving on here, defense counsel talked about the opening  
25 statements.

1           You were here for Google's opening statement as well,  
2 weren't you?

3   **A.**    Yes.

4   **Q.**    Google had promised that this data was aggregated. Is it  
5 aggregated?

6   **A.**    No.

7   **Q.**    Google had promised that this data was for developers  
8 only. Is this data for developers only?

9   **A.**    No.

10   **Q.**   Google had promised that this would make GA not work.

11           Have you seen any evidence that GA -- Google Analytics  
12 would stop working as a result of actually making the SWAA  
13 button work the way it's supposed to?

14   **A.**    No.

15   **Q.**    Defense counsel talked about how Google's trying to  
16 protect people from attackers.

17           In terms of what -- who is actually -- who are the users  
18 actually trying to use the technical safeguards provided to  
19 them to protect themselves from? Is it a third-party attacker  
20 or is it Google?

21   **A.**    The users --

22           **MR. SANTACANA:** Objection, Your Honor. Now, he's  
23 asking about consumer expectations.

24           **MR. MAO:** Your hypothetical. You said "attackers."

25           **THE COURT:** He can answer it from a technical

1 perspective.

2 Go ahead.

3 **THE WITNESS:** Sure. From a technical perspective, the  
4 sWAA control and the WAA control, if they're shut off and if it  
5 worked according to baseline, that would stop the flow of  
6 detailed personal app activity data from third-party apps to  
7 Google. So the switch in the off position is an indication  
8 that the user has rejected giving their agreement for Google to  
9 have that data in the first place.

10 **BY MR. MAO:**

11 **Q.** And that was your understanding on the baseline; isn't  
12 that correct?

13 **A.** Yes.

14 **Q.** You were also asked about how Google Analytics only  
15 provides aggregated data reporting. Do you remember that?

16 **A.** Yes.

17 **Q.** But that's not what Google's actually collecting; isn't  
18 that correct?

19 **A.** Correct.

20 **Q.** It's -- insofar as Google provides its app developers  
21 aggregated data, Google would have then provided less technical  
22 information than it says it's actually collecting for app  
23 developers; isn't that correct?

24 **A.** That's right. The data collected -- taken by Google is  
25 greater than the data that's shared with app developers.

1 Q. And you don't know all the uses in which Google actually  
2 uses sWAA-off data; is that correct?

3 A. That's correct. In their response to our technical  
4 questions, they said they couldn't even document or count all  
5 the different places and ways that they might be using the  
6 data.

7 Q. Google's counsel had asked you about your use of  
8 Google Analytics. Do you recall that?

9 A. Yes.

10 Q. Do you have a lot of choices on the market in terms of  
11 alternatives to Google?

12 A. Google is pretty dominant in the market in terms of  
13 analytics and online advertising. It's really hard to get by  
14 because they have such a large share and because of the way  
15 they've designed their products to work together.

16 Q. I'm almost done.

17 We were talking -- or at least counsel was talking with  
18 you about things such as third-party policies. Do you recall  
19 that?

20 A. Yes.

21 Q. Have you seen anything in the Google documents which you  
22 reviewed that would prevent Google from changing how they use  
23 the data which they collect from app developers?

24 A. No.

25 Q. Can they change that at any time?



1 A. Yes.

2 Q. Can they use a different identifier than GAIA IDs at any  
3 time in which they want from a technical level?

4 A. On a technical level, Google could do whatever it wants.

5 Q. And Google can, on a technical level, use all the unique  
6 Firebase SDK IDs however they want; isn't that correct?

7 A. Correct.

8 Q. Same thing with the Google Mobile Ads IDs; isn't that  
9 correct?

10 A. Yes.

11 Q. And all of those IDs are uniquely identifying, are they  
12 not?

13 A. Yes. They all point to one person.

14 Q. Let me ask you one of my few last questions, which is that  
15 you heard counsel talking about how taking this event-level  
16 data might be necessary for receipts, maybe necessary for ad  
17 fraud. Do you remember that?

18 A. Yes.

19 Q. You have done exhaustive review of data actually produced  
20 on the plaintiffs; is that correct?

21 A. Yes.

22 Q. Did they need all of that data in order to do receipts, in  
23 order to do ad fraud?

24 A. Oh, no. They only needed a tiny portion of it.

25 MR. MAO: Give me a moment, Your Honor.

(Pause in proceedings.)

**BY MR. MAO:**

**Q.** How many times has your opinion been accepted by the courts?

**A.** 20 times that I've been -- testified in court or in arbitration. Now 21.

**Q.** Do you want to give an example of how some of these cases relate to the type of subjects in which you testified here?

**A.** I mean, I can give you a general rundown.

**Q.** Sure. Do you mind just giving me a quick general rundown?

**A.** Yeah. Actually, a number of them -- well, at least one of them related to ad fraud. Some of them were related to trademarks. Some of them are related to First Amendment-type cases, defamation.

But a lot of different kinds of legal disputes end up getting into things like, you know, how these digital platforms work and the statistics and data that you can get from them.

**Q.** So you would know whether or not a certain amount of information is necessary to prevent ad fraud; isn't that correct?

**A.** Yes.

**Q.** And you didn't see that in this case in terms of the total volume of event data and the total volume of events -- sorry -- of various types of app activity data, which was collected in this case, as being necessary for preventing ad fraud; isn't

1 that correct?

2 **A.** Yes. I've even received files with ad fraud auditing  
3 data, and I can receive those files and handle them on my  
4 computer. They're not huge.

5 In this case, the files were just enormous. I mean, the  
6 amount of data here -- even when we only got a small fraction  
7 of it, the amount of data at issue here is much, much larger  
8 than a simple audit log for preventing ad fraud.

9 **Q.** Okay. Last area of questions.

10 You agree with counsel, Google's counsel, that no data  
11 security is perfect; is that correct?

12 **A.** Yes.

13 **Q.** You also agree that you know of no incident where sWAA-off  
14 data collected by Google has been leaked. Do you remember  
15 that?

16 **A.** Yes.

17 **Q.** But does that mean that the user is not harmed by the  
18 collection of sWAA-off data?

19 **MR. SANTACANA:** Objection, Your Honor. Outside the  
20 scope. User harm.

21 **THE COURT:** Sustained.

22 **MR. MAO:** I have no other questions.

23 **THE COURT:** Very well.

24 **MR. SANTACANA:** No questions, Your Honor.

25 **THE COURT:** Anything further?

**RODRIGUEZ - DIRECT / LEE**

1 You may step down.

2 **THE WITNESS:** Thank you.

3 (Witness excused.)

4 **THE COURT:** Okay. Next witness.

5 **MR. LEE:** Yes, Your Honor. Your Honor, plaintiffs  
6 call Anibal Pete Rodriguez.

7 (Anibal Pete Rodriguez steps forward to be sworn.)

8 **ANIBAL PETE RODRIGUEZ,**  
9 called as a witness for the Plaintiffs, having been duly sworn,  
10 testified as follows:

11 **THE WITNESS:** I do.

12 **THE COURTROOM DEPUTY:** Make sure you speak clearly  
13 into the microphone for our court reporter.

14 Could you please state your full name for the record and  
15 spell your last name?

16 **THE WITNESS:** Sure. My name is Anibal Pete Rodriguez.  
17 That's R-o-d-r-i-g-u-e-z.

18 **THE COURTROOM DEPUTY:** Thank you.

19 **DIRECT EXAMINATION**

20 **BY MR. LEE:**

21 **Q.** Good afternoon, Mr. Rodriguez. How are you?

22 **A.** Good afternoon. Doing well.

23 **Q.** Could you please introduce yourself to the jury?

24 **A.** Sure. My name is Anibal Pete Rodriguez.

25 **Q.** And, Mr. Rodriguez, what do you do for a living?

1 A. I am in sales.

2 Q. And where do you live?

3 A. I live in Connecticut.

4 Q. Do you have family, kids?

5 A. I do have a family back at home.

6 Q. Any kids?

7 A. Two kids, yes.

8 Q. Are you aware -- are you away from your family that's back  
9 in Connecticut while you're here at trial with us?

10 A. Yes.

11 Q. And I know you'd like to be here throughout the whole  
12 case, but could you explain to the jury why you need to get  
13 back home to Connecticut next week?

14 A. Sure. I have a new job that I have to start, and also my  
15 wife's home alone, working and juggling the kids. I just want  
16 to be there and make sure that I'm there supporting her.

17 Q. Are you serving as a class representative in this lawsuit,  
18 Mr. Rodriguez?

19 A. Yes.

20 Q. And as a class representative, have you kept up-to-date on  
21 the case over the years?

22 A. Yes.

23 Q. Did Google take your deposition in this case?

24 A. Yes.

25 Q. And did you have lots of calls with your lawyers,

1 including with me?

2 A. Yes.

3 Q. Okay. How long have you been a class representative for  
4 this case?

5 A. Five years now.

6 Q. Have you ever been paid any money to be a class  
7 representative?

8 A. No.

9 Q. Why did you -- why did you decide to file this lawsuit and  
10 become a class representative?

11 A. Well, Google -- Google gave me a choice to -- to have them  
12 stop collecting my information and it wasn't true; and when I  
13 learned that, I was pretty upset and I wanted to come find out  
14 what I could do to help them stop doing that -- well, help stop  
15 doing that.

16 Q. So did you initially believe that Google was offering you  
17 a choice to stop it from saving your app activity data through  
18 a privacy control called WAA or SWAA?

19 A. Yes.

20 Q. Did that choice turn out to be a real choice?

21 A. No. No.

22 Q. Before we go further, I want to clear something up that  
23 came up yesterday.

24 A. Sure.

25 Q. You were here for the opening statement; right?

1 A. Yes.

2 Q. You were also here yesterday for the other class  
3 representative, Julian Santiago's testimony?

4 A. Yes.

5 Q. And you saw the cross-examination of Mr. Santiago; right?

6 A. Yes.

7 Q. All right. Let's take a look at what Mr. Hur, Google's  
8 lawyer, said in opening statement about an issue that came up  
9 in Mr. Santiago's examination. This was shown yesterday.

10 This is Mr. Hur who stated [as read]:

11 "You didn't hear that each of them, the class  
12 representatives, turned their sWAA setting off  
13 shortly before or after meeting their lawyers so that  
14 they could become class representatives."

15 Do you see that?

16 A. I see that here, yes.

17 Q. And do you recall yesterday Mr. Santiago testifying that  
18 he had turned off WAA before he ever met with any lawyer or  
19 became a class representative?

20 A. Yes.

21 Q. And, in fact, Google's lawyer, Mr. Attanasio, during  
22 cross-examination, said the following to Mr. Santiago.

23 If we can pull up 514, line 6 -- line 16. I'm sorry. You  
24 have it.

25 And he stated [as read]:

1 "Well, we're going to learn that your other  
2 colleague turned it off after. I accept that you  
3 turned it off before."

4 That's what he told Mr. Santiago yesterday; right?

5 **A.** Right.

6 **Q.** So I guess Mr. Attanasio thought that you were the one  
7 that Mr. Hur was referring to in his opening statement. So  
8 let's be very clear. What year did you turn off WAA or sWAA?

9 **A.** 2018.

10 **Q.** And when did you first learn about this lawsuit against  
11 Google?

12 **A.** 2020.

13 **Q.** Did this lawsuit even exist before 2020?

14 **A.** No.

15 **Q.** Had you met any of the lawyers on your team or any expert  
16 before 2020?

17 **A.** No.

18 **Q.** All right. Let's go back to Mr. Hur's opening statement.  
19 It's at 252. What he said was [as read]:

20 "You didn't hear that each of them turned their  
21 sWAA setting off" --

22 **MS. AGNOLUCCI:** Your Honor, this transcript is being  
23 displayed to the jury. We object.

24 **THE COURT:** Well, why don't you just ask the question,  
25 although the door has certainly been opened on all of this, but



1 don't show the transcript.

2 **MR. LEE:** Sure. We can do it without the transcript.

3 No problem, Judge.

4 **BY MR. LEE:**

5 **Q.** So Mr. Hur stated that [as read]:

6 "You didn't hear that each of them turned their  
7 sWAA setting off shortly before or after meeting  
8 their lawyers so that they could become class  
9 representatives."

10 Right?

11 **A.** Right.

12 **Q.** Now, did either you or Mr. Santiago turn off sWAA after  
13 learning of this lawsuit?

14 **A.** No.

15 **Q.** Did either you or Mr. Santiago turn off sWAA to become  
16 class representatives?

17 **A.** No.

18 **Q.** Was Mr. Hur's statement in opening statement -- in his  
19 opening statement accurate?

20 **A.** I don't think so.

21 **Q.** Mr. Rodriguez, let's shift gears. Let's start from the  
22 basics.

23 Do you have a Gmail account?

24 **A.** I do.

25 **Q.** When did you first open a Gmail account?

1     **A.**    I would say when I first got a smartphone, roughly around  
2     2009.

3     **Q.**    And have you had several Gmail accounts over the years?

4     **A.**    Yes.

5     **Q.**    Why did you have different Gmail accounts?

6     **A.**    So I created Gmail accounts for, like, dummy accounts.  
7     Basically, a lot of them were dummy accounts. I created Gmail  
8     accounts for things like eBay store or something like that, a  
9     YouTube channel.

10           And I also have emails for each of my kids so that way I  
11     can communicate with their teachers, and I can diff- -- it's a  
12     hard word to say -- differentiate between both of them and just  
13     kind of make sure I have it all collected and I know who -- who  
14     the email is for.

15     **Q.**    Now, what kind of phones have you had since 2016?

16     **A.**    I've had mainly Samsung phones. So I've had a Samsung S8,  
17     a Samsung S21, and right now I have a Motorola.

18     **Q.**    The Samsung and Motorola devices, are those all running  
19     Android?

20     **A.**    They are.

21     **Q.**    And are you aware that Android phones are developed by  
22     Google?

23     **A.**    I am aware.

24     **Q.**    Now, as part of this lawsuit, did Google provide a list of  
25     non-Google apps or third-party apps that use software

1 development kits, these SDKs we've been hearing about?

2 A. Yes.

3 Q. And those SDKs are what enables Google to take data from  
4 your apps when you're using them?

5 A. Right.

6 Q. Is that your understanding?

7 A. Right.

8 Q. And do you remember looking at Google's list that it  
9 provided and identifying which of those apps that you used?

10 A. Yes.

11 Q. All right. Let's take a look at that. It's a  
12 demonstrative slide.

13 Ready?

14 A. Yes. I'm sorry. I see it.

15 Q. No, no. We're just waiting for it to come up.

16 Could you explain to the jury what this slide is?

17 A. So this is a list of apps that are on my phone that have  
18 the Google SDK that collect data apparently with WAA off as  
19 well.

20 Q. Now, is it your understanding that Google was taking your  
21 data from each of these apps even with WAA off? Is it now your  
22 understanding?

23 A. Yeah.

24 Q. Before the lawsuit, did you know that Google was taking  
25 your data when you used all of these apps even with WAA off?

1 A. No.

2 Q. How did you learn that Google was taking your data from  
3 these apps even when you had WAA off?

4 A. Through our team, our experts, Mr. Hochman. He  
5 investigated a little bit further, found out that these --  
6 these apps were still taking data and providing it to Google.

7 Q. And it was your data from these apps. That's what he  
8 confirmed; correct?

9 A. Yes.

10 Q. Now, based on just looking at these apps here, what are  
11 some things that Google would know about you that you didn't  
12 want it to know?

13 A. There's quite a few here, but like things like what I ate,  
14 for instance, like McDonald's; Zillow, if I'm looking for a  
15 house; Instagram, what photos I'm looking at, what articles I'm  
16 reading, things of that nature.

17 Q. Do you want Google to know everything that you're doing on  
18 these apps?

19 A. No.

20 Q. Why not?

21 A. It's -- I just think it's really, like, creepy and weird  
22 that, like, if you think everything's okay, everything -- you  
23 know, it's like someone's looking over your shoulder at all  
24 times and -- and collecting -- or just kind of just watching  
25 you and just getting to know who you are.

1 And just, like, it's just weird, especially if it's  
2 some -- if you didn't give permission for that to happen, and I  
3 don't know. It's just weird.

4 Q. All right. Is your phone password protected?

5 A. It is.

6 Q. All right. These apps that were on your phone that we  
7 talked about, do you use them regularly?

8 A. I do, yes.

9 Q. And does that frequency of use go back to 2016?

10 A. Mm-hmm, yeah.

11 Q. You understand that the relevant time period in this case  
12 is the 98 months between July 2016 and September 2024?

13 A. Yes.

14 Q. Okay. During that 98-month period, what's your best  
15 estimate in terms of the number of months that you used one or  
16 more of these third-party apps here where Google would have  
17 taken your data?

18 A. Every -- every one of those months.

19 Q. Did Google provide you with something called privacy  
20 controls?

21 A. Yes.

22 Q. Was Web & App Activity a privacy control offered to you by  
23 Google?

24 A. It was, yes.

25 Q. All right. Now, you told us that you turned off WAA or

1 sWAA in 2018; is that correct?

2 A. Right.

3 Q. Okay. When you turned the WAA button off, did you think  
4 that Google would continue to collect and save and use your  
5 data based on everything you were doing on these apps?

6 A. No.

7 Q. Mr. Rodriguez, have you reviewed Google's privacy policy?

8 A. Yes.

9 Q. When was that?

10 A. So back in 2018, I would say.

11 Q. And why were you reading the privacy policy in 2018?

12 A. So around that time frame I'd been hearing a lot about  
13 Google saving a lot of information about people, so I looked --  
14 I just went to look through the -- through my phone and just  
15 found some more information. And I was mainly worried about my  
16 location, so I found the privacy settings, and I went ahead and  
17 turned off WAA.

18 Q. So you were -- I'm just trying to make sure I understand  
19 you.

20 A. Sure.

21 Q. The reason you looked at the settings on your phone and  
22 this privacy policy from 2018 is, your initial concern was  
23 about location tracking?

24 A. Right.

25 Q. And in doing that research and looking at the privacy

1 policy and the privacy controls that were offered, is that how  
2 you came across WAA?

3 A. Yes.

4 Q. Did you -- when you saw the WAA disclosures and the  
5 privacy button that is either both WAA and sWAA, did you turn  
6 it off after reading the privacy policy?

7 A. Yes.

8 Q. Let's put up on the screen what's been previously admitted  
9 as PX62.

10 Do you recognize this document, Mr. Rodriguez?

11 A. Yes.

12 Q. Did you read this privacy policy prior to the lawsuit?

13 A. Yes.

14 Q. And can you read the effective date on there?

15 A. It says effective May 25th, 2018.

16 Q. And could you please read out loud to the jury the first  
17 paragraph that's in bold letters?

18 A. [as read]:

19 "When you use our services, you're trusting us  
20 with your information. We understand that this is a  
21 big responsibility and work hard to protect your  
22 information and put you in control."

23 Q. All right. Let's go down two paragraphs on the same page.

24 And, by the way, is this -- what page are we on right now?

25 Do you know?

1 A. The policy -- the privacy policy.

2 Q. Yeah. Is it the first page?

3 A. Yes.

4 Q. All right. Let's go down, yeah, two paragraphs.

5 And do you see the sentence at the end of that paragraph,  
6 beginning with "Across our services"?

7 A. Yes.

8 Q. Could you read that to the jury?

9 A. [as read]:

10 "And across our services you can adjust your  
11 privacy setting" -- "settings to control what we  
12 collect and how your information is used."

13 Q. What is your understanding of what Google means when it  
14 says you can control what we collect?

15 A. It means I can control what they can collect as far as my  
16 information.

17 Q. And what's your understanding of what Google means here  
18 when it says you can control how your information is used?

19 A. Exactly that, that I can control how it can be used.

20 Q. According to the first page of the privacy policy, who's  
21 in control of what information Google is allowed to collect and  
22 use?

23 A. Me.

24 Q. All right. Let's go -- let's continue on down the privacy  
25 policy on page 8.



1 Do you see there's a section in the privacy policy that  
2 presents you the privacy controls?

3 A. Yes.

4 Q. And did you see this privacy control section when you  
5 reviewed this document back in 2018?

6 A. Yes.

7 Q. Now, from here, can you explain to the jury how you get to  
8 the WAA button?

9 A. There is a link there that says, "Go to activity  
10 controls."

11 Q. Okay. Let's take a look at PX84, also already in  
12 evidence.

13 And is this what is displayed when you click that link?

14 A. Yes. Similar, yes.

15 Q. Okay. Now, what was your understanding of what these  
16 buttons do?

17 So let's start with the Web & App Activity, and we can  
18 snip out -- we can also include the subsettings.

19 What was your -- so do you see at the top there's  
20 Web & App Activity?

21 A. Right.

22 Q. And then below, there's the subsettings?

23 A. Yes.

24 Q. Okay. What was your understanding of what these buttons  
25 do when they're on? Let's start with WAA.

1 A. So if it's on, it does save your activity on Google sites  
2 and apps, including associated info, like location.

3 Q. All right. And how about sWAA? We've been calling it  
4 sWAA, but here it's labeled as the subsettings. Do you see  
5 that?

6 A. Right.

7 Q. What happens if a user turns sWAA on?

8 A. sWAA leaves -- okay -- include Chrome history and activity  
9 from sites, apps, and devices that use Google services.

10 Q. So Google can save all those things if sWAA is on?

11 A. Right.

12 Q. And if you turn WAA off, by the way, what would happen  
13 with sWAA?

14 A. It automatically gets turned off.

15 Q. So they both turn off?

16 A. Right.

17 Q. Do you see here at the top of Web & App Activity it says  
18 "Learn more"?

19 A. Yes.

20 Q. Do you remember clicking that back in 2018?

21 A. Yes.

22 Q. All right. Let's take a look at what's been premarked as  
23 Exhibit 104.

24 THE COURTROOM DEPUTY: Has that been admitted?

25 MR. LEE: Not yet. I'm going to do it right now.

1 **BY MR. LEE:**

2 **Q.** Mr. Rodriguez, did you review this disclosure in 2018?

3 **A.** Yes.

4 **MR. LEE:** Your Honor, may I admit PX104 into evidence?

5 **MS. AGNOLUCCI:** No objection, Your Honor.

6 **THE COURT:** 104 will be admitted.

7 (Trial Exhibit PX104 received in evidence.)

8 **MR. LEE:** All right. It's up.

9 **BY MR. LEE:**

10 **Q.** Do you see here where the disclosure states what's saved  
11 as Web & App Activity?

12 **A.** Yeah, I see that.

13 **Q.** I know it has a weird formatting thing, but just bear with  
14 me. Okay?

15 **A.** Sure.

16 **Q.** Based on Google's disclosure, what activity does Google  
17 say that it saves when WAA is on?

18 **A.** It says websites and apps you use -- that I use.

19 **Q.** Mm-hmm.

20 **A.** Your activity on websites and in apps that use Google  
21 services.

22 **Q.** Okay. Do you see below there, Google also states, "To let  
23 Google save this information, Web & App Activity must be on"?

24 **A.** Yes.

25 **Q.** All right. What's the opposite of on?

1 A. Off.

2 Q. And based on these statements by Google, what's your --  
3 what understanding did you have regarding the data Google is  
4 not allowed to save when WAA is turned off?

5 A. That none of this information would be saved.

6 Q. And based on all the disclosures that we looked at, does  
7 the WAA button and sWAA button control where Google saves your  
8 app data or whether Google saves your app data?

9 A. Whether.

10 Q. Whether?

11 A. Right.

12 Q. After you read the privacy policy and these disclosures  
13 about WAA, what did you do next?

14 A. I went on my phone and found the -- the activity controls  
15 and turned off WAA from there.

16 Q. You did that from your Android phone?

17 A. My phone, yeah.

18 Q. All right. Let's take a look at PX120A, which is now in  
19 evidence.

20 Are you familiar with these screens from the Android  
21 phone?

22 A. Yes.

23 Q. And before you joined this lawsuit, did you check your  
24 Android phone to make sure that these were the same screens as  
25 what we have depicted here?

1 A. Yes.

2 Q. Now, at the top of screen one, do you see where -- it's at  
3 the very top -- do you see where Google calls this entire  
4 screen privacy?

5 A. Yes, I see it there.

6 Q. And then below, in the red box, do you see that there's  
7 something called activity controls?

8 A. Yes.

9 Q. And what does it say? What's the description of activity  
10 controls?

11 A. It says [as read]:

12 "Choose the activities and info you allow Google  
13 to save."

14 Q. Now, by clicking "activity controls," does that take you  
15 to the screen in the middle, the second screen?

16 A. Yes.

17 Q. And do you see the WAA and SWAA button presented there?

18 A. I do.

19 Q. And there's a smaller box below Web & App Activity that  
20 has a "Learn more" link. Do you see that?

21 A. Yes.

22 Q. All right. And does clicking that take us to Screen 3?

23 A. Yes, it does.

24 Q. Now, based on Screen 3 -- let's blow that up a little,  
25 Screen 3 -- what activity does Google say it saves when WAA is

1 on, starting at the top there?

2 **A.** Sure. Info about your browsing and other activities on  
3 sites, apps, and devices that use Google services.

4 **Q.** And what about the two bullets there?

5 **A.** Yeah. Sites and apps that partner with Google to show ads  
6 and sites and apps that use Google -- service -- services,  
7 including data apps that share with Google.

8 **Q.** And do you see in the box below, it says, "To let Google  
9 save this information, Web & App Activity must be on"?

10 **A.** Yes.

11 **Q.** So what should happen when you turn Web & App Activity  
12 off?

13 **A.** Like before, everything that it says it would save, it  
14 should not save.

15 **Q.** All right. You mentioned that you have a specific memory  
16 of reading the Google privacy policy and disclosures about  
17 WAA --

18 **A.** Right.

19 **Q.** -- and turning off WAA in 2018?

20 **A.** Right.

21 **Q.** Okay. So let's just set the stage for that. Let's take a  
22 look at DX 941.R2, which is already in evidence.

23 This document was shown during Mr. Monsees' examination,  
24 as well as Mr. Santiago's examination. Do you remember that?

25 **A.** Yes.

1 Q. Both times that this document was shown, did they ever go  
2 to the second page of this document?

3 A. I don't recall, no.

4 Q. Okay. Let's focus on the peteysake08@gmail account. Do  
5 you see that?

6 A. Yes.

7 Q. And is that the Gmail address associated with your Android  
8 phone?

9 A. It is. It's on my phone.

10 Q. And has that been the case for how long?

11 A. A very long --

12 Q. That would be since 2016?

13 A. Yeah. A very long time.

14 Q. All right. Let's flip to the second page.

15 And so at the top there, you can see that the account  
16 email section is blank because it's still peteysake from the  
17 first page.

18 A. Right.

19 Q. Do you see that?

20 A. Mm-hmm. Yes.

21 Q. And you see the timestamp for WAA shows that you turned  
22 WAA off November 4th, 2018. Do you see that?

23 A. I do, yes.

24 Q. And sWAA is also off?

25 A. Yes.

1 Q. And then you see that in 2018, it turns back on?

2 A. Yeah. I'm not too sure why. I don't know why that would  
3 happen. It's happened before, but I can't explain why. But  
4 sWAA is still off.

5 Q. And did you see -- did you turn the WAA button back on  
6 when you noticed that it was turned on?

7 A. I'm sorry. Say it again.

8 Q. Did you turn -- I'm sorry.

9 Did you turn the WAA button off again when you noticed  
10 that it was back on?

11 A. Yes.

12 Q. Okay. Now let's focus on the sWAA column, since the case  
13 is about third-party apps.

14 Has sWAA been continuously off since November 4, 2018?

15 A. Yes. It looks like, yes.

16 Q. And does it remain off to this day?

17 A. Yes.

18 Q. Now, if you take that -- and keep the document, but let's  
19 minimize the blowup part, the pop-up. Thank you.

20 You see that there was a couple of other Gmail addresses  
21 on this page, and I think there was one on the prior page too.

22 A. Right.

23 Q. Are these the accounts that you were referencing earlier  
24 today?

25 A. Yes.



1 Q. Okay. Now, when you turned off WAA or turned off sWAA,  
2 did you expect that Google was going to collect and save your  
3 data when you used those apps?

4 A. No.

5 Q. And before joining the lawsuit, had you ever read anything  
6 that would call into question the promises Google made about  
7 WAA or sWAA?

8 A. No.

9 Q. Putting aside what data Google collects, did you  
10 understand that the apps themselves could access your activity  
11 when you were on those apps?

12 A. Yes. I am aware of that, yeah, and I get it. You know,  
13 those specific apps will save certain things like, you know,  
14 like an alarm clock's, you know, saving your -- the time that  
15 you put an alarm on, stuff like that. I mean, I understand  
16 that.

17 Q. And if you're okay with an app, a specific app, having  
18 your data, why do you mind if Google has it?

19 A. The thing is, is that Google will collect all the data  
20 from all the apps and have more than just, for instance, the  
21 alarm clock. They'll have where you've been, where you ate,  
22 what you ate, what you watched on your phone, whether you're  
23 looking for a job. All these things, you know, I think is  
24 private. I mean, no one wants to look -- no one wants anybody  
25 looking into your home while you're eating when your curtain is

## PROCEEDINGS

1 closed.

2 **MR. LEE:** You could take the thing down.

3 **THE COURT:** We've now reached the moment of truth.

4 **MR. LEE:** That's fine, Your Honor.

5 **THE COURT:** Okay. So, members of the jury, you're  
6 going to have a long weekend, as I mentioned to you before.  
7 Even more reason to redouble your efforts to make sure you  
8 don't discuss this case with anyone, you don't do any research,  
9 you do nothing associated with the case. Put it out of your  
10 mind. Enjoy what, hopefully, will be a nice weekend.

11 And then at 8:30 on Monday, you'll be back, engaged, and  
12 we'll get going. But have a very nice weekend and do other  
13 things. Thanks.

14 (Proceedings were heard out of the presence of the jury.)

15 **THE COURT:** You may step down.

16 We're out of the presence of the jury.

17 R.J., do you want to give us the time pronouncement?

18 **THE LAW CLERK:** Plaintiffs have 14 hours, 30 minutes,  
19 and 40 seconds. Defendant has 14 hours, 26 minutes, and  
20 2 seconds.

21 **THE COURT:** Okay.

22 Okay. The one issue that we deferred from the morning was  
23 with respect to Mr. Lasinski and the disgorgement  
24 extrapolation, global cost ratio issue, the footnote in his  
25 supplemental report.

## PROCEEDINGS

1 So who is going to talk to me about that?

2 **MS. BONN:** I can, Your Honor.

3 And I apologize. I've got someone bringing in the report.

4 But what's happened here is that essentially during  
5 discovery, as we talked about before opening statement, Google  
6 produced certain income statements that they represented  
7 included U.S. figures for their App Promo line of business. It  
8 didn't include the latter years.

9 In August of 2024, they produced an updated spreadsheet  
10 which they represented were global figures through that time  
11 period, through '21 through '23. And we had a lot of questions  
12 about the spreadsheet because, since they had given us numbers  
13 they represented were U.S. earlier and now global numbers, we  
14 were noticing some key differences, including that in the  
15 earlier statements they gave us, it looked like traffic  
16 acquisition costs as a proportion of App Promo revenue were in  
17 the 65 percent plus range. But in the new spreadsheets, which  
18 they gave us after discovery closed, at least on a global  
19 basis, the ratio of traffic acquisition costs to revenue was  
20 more like in the 25 percent range.

21 So we spent some time negotiating with Google to work out  
22 a stipulation by which they would give us further information  
23 that would allow us to use the spreadsheet and their  
24 representations to calculate the App Promo net revenue for  
25 those latter years.

## PROCEEDINGS

1 The stipulation was reached in April of 2025. I believe  
2 April 18th, it was filed on the docket. And shortly  
3 thereafter, I think within a week of the stipulation,  
4 Mr. Lasinski supplemented his report. He used the same  
5 methodology to calculate net revenue.

6 The only difference was that Google represented in their  
7 stipulation that there was effectively an accounting change to  
8 their system; that, therefore, these latter years were on a  
9 global basis.

10 And they also represented that for purposes of this  
11 litigation, their traffic acquisition cost, as a proportion of  
12 the revenue from App Promo, did not materially change.

13 And so in Mr. Lasinski's supplemental report, he  
14 calculated the numbers for those latter years using two  
15 methods, and both were disclosed in his report and in the  
16 schedules attached.

17 The first method is he said, "Well, if I rely on what  
18 you're telling me in the stipulation, which is the ratio has  
19 not changed, then I'm going to take the 65 percent --  
20 67 percent ratio from the earlier years for traffic acquisition  
21 costs, and I will hold that constant for the latter years, and  
22 that will help me estimate the net revenue for the latter years  
23 using the spreadsheet but relying on your representation that  
24 there really was no change in the ratio of traffic acquisition  
25 costs for the U.S."

## PROCEEDINGS

1 On the other hand, he said, "Looking at the spreadsheet,  
2 it could suggest there was a change because, on a global basis  
3 at least, the traffic acquisition costs appear to be materially  
4 lower, 25 percent range as opposed to 67 percent range."

5 So in his footnote he said, "If I were instead to rely on  
6 the numbers that you have reported to me in the spreadsheet in  
7 order to then isolate to the U.S., it would result in a  
8 larger" --

9 **THE COURT:** Independent of the number --

10 **MS. BONN:** Yeah.

11 **THE COURT:** Independent of the notification, if you  
12 will, that this is -- this was a global number. Do you have  
13 any reason -- anything else to believe that that is the  
14 appropriate figure to use to come up with the ratio?

15 **MS. BONN:** I do, Your Honor.

16 **THE COURT:** What is it?

17 **MS. BONN:** Here's what it is. Google, when they  
18 produced their initial App Promo data, they initially  
19 represented they were U.S. figures. They have since  
20 backtracked and said, "Actually, wait a minute. Even the  
21 initial figures we presented were global."

22 We have been able to, I think, demonstrate, and  
23 Mr. Lasinski will be able to demonstrate, that the figures they  
24 gave us in the App Promo spreadsheet for the earlier years had  
25 U.S. revenue figures. However, they are repre- -- and we have

## PROCEEDINGS

1 not been able to confirm the same is true of costs, and they  
2 are representing that the costs were global.

3 So I think there's a possibility that what happened here  
4 is Google produced to us a spreadsheet where they shoved global  
5 costs, global traffic acquisition costs, into a U.S. revenue  
6 number, which is what accounted for Mr. Lasinski relying on it  
7 and showing a 67 percent traffic acquisition cost as a  
8 proportion of revenue.

9 And then I think that when Google produced the latter  
10 updated spreadsheet on a global basis and it showed that, in  
11 fact, traffic acquisition costs in this line of business were  
12 more like 25 percent, that could explain the delta.

13 And at the time of his report, what Mr. Lasinski was left  
14 with was a contradiction between two different things Google  
15 was saying; on the one hand, there's no change; and, on the  
16 other hand, these data points that suggest there was.

17 And so what he did in his report, in fairness, was to  
18 say --

19 **THE COURT:** That last piece I'm still unclear on.

20 **MS. BONN:** Yes.

21 **THE COURT:** He says there was no change and you're  
22 saying, "Well, these figures suggest there was." Is there  
23 anything, beyond the fact that it's different figures, that  
24 leads you to believe that is the appropriate calculation?

25 **MS. BONN:** Yes, Your Honor. What I'm trying to say as

## PROCEEDINGS

1 well is, now what we believe is happening is even in the  
2 earlier spreadsheets they produced to us during discovery --

3 **THE COURT:** And what's your basis for that?

4 **MS. BONN:** -- that the cost in those, and when you  
5 look at the cost that they represented at the time was U.S. and  
6 then the later cost for global during the later years they  
7 produced, the cost curve does not look like there's a delta  
8 essentially. The cost curve continues.

9 And Google has now had one of their witnesses, Ms. Belinda  
10 Langer, testify under oath that she believes the earlier  
11 spreadsheet was global, not U.S.

12 We have confirmed for ourselves that the revenue figures,  
13 at least in that spreadsheet, tie out to other documents Google  
14 has produced showing the revenue in the earlier spreadsheets is  
15 U.S. revenue, but we cannot do the same for the costs.

16 So we have a good faith basis to believe that what is  
17 really going on here is that Google, in the earlier years, when  
18 they gave us the initial spreadsheet, mixed and matched and  
19 gave us U.S. revenue and global costs; and then in the later  
20 spreadsheet, they just gave us global against global.

21 And so we think that what caused -- potentially what  
22 caused the difference in these two numbers is that if  
23 Mr. Lasinski was given, in the first instance, global traffic  
24 acquisition costs but U.S. revenue, it would make the global  
25 traffic acquisition costs look like a much higher proportion.

## PROCEEDINGS

1           So in order for him to explain clearly what happened and  
2           to present both numbers, I think, in fairness, that is  
3           something that he disclosed. He has a reason to think that the  
4           second number may be the reliable number, and that's why he  
5           included an alternative calculation not only in a footnote but  
6           in a series of schedules that were attached to the report that  
7           walked through the calculation and that showed the result of  
8           the calculation. So I think also saying that it was confined  
9           to a footnote is inaccurate.

10           **THE COURT:** Okay.

11           **MS. CHANDRASEKERA:** Your Honor, just to take a step  
12           back -- and, first, Thilini Chandrasekera for Google.

13           To take a step back, we're talking about Mr. Lasinski's  
14           profit calculations because this is his unjust enrichment  
15           analysis. So we don't dispute that in both his initial report  
16           from 2023 and his supplemental report from 2025, that he tried  
17           to do a revenue-minus-cost-equals-profit analysis.

18           The issue here is about what costs he used. And  
19           Your Honor picked on the exact assumption that we are  
20           questioning here that we did not get to cross him about at his  
21           deposition, and that is the costs that Mr. Lasinski uses are  
22           called traffic acquisition costs, TACs. Those are the costs --  
23           it's essentially rent that Google pays app developers to take  
24           up space for their -- to put other ads on those apps.

25           The issues that Mr. Lasinski is now using global numbers,



## PROCEEDINGS

1 which are the fees that are charged to Google to show ads,  
2 there isn't just one Internet. Global numbers -- there's no  
3 reason to believe that global numbers would be accurate or the  
4 right ratio to use for U.S. Things cost different things in  
5 different places.

6 **THE COURT:** Isn't this confusion, to some extent, the  
7 result of Google's disclosures?

8 **MS. CHANDRASKERA:** No, Your Honor. It's -- that  
9 stipulation that counsel just spoke about, it's actually quite  
10 clear what Google is trying to explain.

11 This did all stem -- because Mr. Lasinski's initial report  
12 came partway through the class period; and at the same time,  
13 there's a confluence factor where Google changed its accounting  
14 structure so that it stopped providing these traffic  
15 acquisition costs by country. So, instead, Google had to  
16 provide global TACs, traffic acquisition costs.

17 To explain that, the parties heavily negotiated a  
18 stipulation in which Google took great pains to explain what  
19 exactly it was -- what exactly it was providing. Sorry. And  
20 we explained that the new data we had provided was global but  
21 that, based on our internal metrics, that the ratio of U.S.  
22 traffic acquisition costs from 2017 to '21, which was what was  
23 available to Mr. Lasinski for his initial report, had not  
24 materially changed by the time he wrote his second supplemental  
25 report.

## PROCEEDINGS

1 And so between those two things, the explanation that our  
2 internal metrics showed that U.S. costs, what app developers  
3 can charge Google in the U.S. to place ads, had not really  
4 changed and that global numbers, unsurprisingly, are far lower  
5 because, you know, the U.S. has a strong dollar. Frankly,  
6 things are more costly here, and we explained that. I'm  
7 looking at Docket 481. Sorry. 481, that's the stipulation.

8 We explain in paragraph 14 that Google's new accounting  
9 structure didn't track, report, or otherwise maintain  
10 country-specific records.

11 Paragraph 15 explains that our TACs, as a percentage of  
12 the correct App Promo revenues, did not materially change  
13 through the end of the class period.

14 And, additionally, because of the -- there is a confusion  
15 here about the initial numbers; and we had expressed an  
16 agreement -- or a willingness to enter an agreement in which  
17 our expert, our rebuttal damages expert, would not criticize  
18 Mr. Lasinski on the use of potentially global figures in his  
19 initial report, which Dr. Knittel had included in his original  
20 rebuttal report. We are willing to drop that for the sake of  
21 this confusion.

22 **MS. BONN:** I think what's going on here, Your Honor,  
23 is I think Dr. Knittel no longer has confidence that, in fact,  
24 the original numbers that were given were both global, which is  
25 what Google represented. We have confidence that while their

## PROCEEDINGS

1 revenue numbers were U.S. numbers, the cost numbers were  
2 global.

3 And because of that mismatch, it caused both Mr. Lasinski,  
4 in relying on Google's representation at the time that they  
5 were both U.S., to say, "Okay. Well, looks like traffic  
6 acquisition costs are as high as 67 percent."

7 Google's stipulation, which they offered to explain this  
8 second spreadsheet, says the following [as read]:

9 "For purposes of this litigation, Google states  
10 that as it relates to Google's revenues from  
11 app promo ads, the ratio of serve-to-build revenue  
12 during 2023 was not materially different from the  
13 ratio for 2022."

14 That doesn't answer the question we have, which is: What  
15 was the ratio? Was the ratio 67 percent or was it lower and  
16 more in line with these latter figures they produced? Because  
17 what really happened in the early years is they gave us U.S.  
18 revenue and global costs.

19 And they say quite carefully in paragraph 14 of their  
20 stipulation [as read]:

21 "Google's 2022 to 2024 accounting structure does  
22 not track, report, or otherwise maintain  
23 country-specific records of Google's traffic  
24 acquisition costs for App Promo."

25 They never say what was the case for the earlier years.

## PROCEEDINGS

1 And so I think what's happening here is that Mr. Lasinski  
2 relied on what Google gave him -- and, by the way, it was given  
3 to him after his deposition. He was deposed in 2023. Google  
4 produced this updated App Promo spreadsheet in August of '24.

5 And he said, "Look, there's an inherent inconsistency  
6 between these two things. You've given me these spreadsheets  
7 that if I take them at face value and what you tell me they  
8 are, seemingly show a huge change or dropoff in these traffic  
9 acquisition costs; and then I've got your representation, which  
10 you say is for purposes of litigation, that nothing has  
11 changed."

12 And then when he looks and he digs into the original  
13 spreadsheet, we can tie out the revenue figures in there to  
14 other documents in Google's production. So we have great  
15 confidence that the earlier spreadsheet had U.S. revenues.

16 But Google, to this day, Dr. Knittel, to this day, have  
17 represented it was global costs. So this is the issue. It's a  
18 problem of Google's own making. It's a problem with their  
19 production.

20 I think their real problem is now Dr. Knittel no longer  
21 wants to stand behind some of the things that he accepted to be  
22 true for his analysis, and they're trying to unwind all of this  
23 by preventing Mr. Lasinski from offering an opinion that was an  
24 appropriate supplement based on new information that Google  
25 produced.

## PROCEEDINGS

1           **THE COURT:** I'm not sure why you think you're  
2 constrained in terms of your cross-examination of their  
3 witness. You're not. You can --

4           **MS. BONN:** Of course.

5           **THE COURT:** You can test whether or not he's backing  
6 away from it.

7           **MS. BONN:** Well, I think what she just raised as well,  
8 he won't do this if Mr. Lasinski won't do that. And my point  
9 is: I think Mr. Lasinski fairly disclosed the opinions. He  
10 should be able to offer both and explain which --

11           **THE COURT:** The other opinion -- my problem is that  
12 the footnote that Lasinski has included that has, in the  
13 alternative, upper-end possibility seems to be untethered to  
14 any basis.

15           It -- I can -- I'm willing to accept everything you say  
16 about the initial confusion was not of your making and all that  
17 you've described.

18           The one piece I'm not quite seeing is how you then say:  
19 So then we can leap up to this higher figure for which we don't  
20 appear to have any support because we don't believe the other  
21 numbers. And that's what I'm not following based on --

22           **MS. BONN:** Let me explain further.

23           **THE COURT:** Actually, she's doing very well,  
24 Mr. Boies. You don't need to.

25           **MS. BONN:** Yeah. Yeah, if I can explain.

## PROCEEDINGS

1           So in the earlier years -- okay. Let's assume for a  
2 moment that what we currently think is correct, that what  
3 Google did was give us global traffic acquisition costs in U.S.  
4 figures.

5           That would suggest that the U.S. traffic acquisition  
6 costs, the raw numbers should actually be much lower than the  
7 global costs they gave us. And if that were the case, then in  
8 the earlier years, in fact, traffic acquisition costs would not  
9 be as high as 67 percent. They would be much lower.

10          You could take that global number and back it out to U.S.,  
11 and it would actually demonstrate a lower percentage, and that  
12 lower percentage is actually in line with the latter  
13 spreadsheet they produced that showed global.

14          So it's not merely that they gave us a spreadsheet that  
15 shows global and we have nothing to link it up. Based on this  
16 mismatch, we can take the earlier number, say: Okay. What  
17 fraction of that -- if I assume -- I know it's U.S. revenue.  
18 Now if I take Google's current word that this was global costs  
19 and I now isolate it to U.S., what does that suggest the ratio  
20 actually should have been the whole time? And it's much closer  
21 to the 20-something percent range, in line with the latter data  
22 point.

23          So we're not merely going to have Mr. Lasinski say, "I'm  
24 assuming that the global applied to the U.S." In fact, he's  
25 been able to tie this out very carefully and explain in great

## PROCEEDINGS

1 detail why this explanation for what happened would actually  
2 demonstrate that the TACs were lower even in the earlier years.

3 And his schedule didn't even go that far. His schedule  
4 said, "You know what? I'm just still going to take as a given  
5 what you told me, but I think that I can trust, at least in  
6 this alternative, that it's a possibility that this was the  
7 number for the latter years."

8 So I want to just clear up, he's not merely going to offer  
9 an untethered assumption; it's actually from having carefully  
10 tied out each of these numbers and explaining why that  
11 rationale actually makes perfect sense when you look at the  
12 numbers in both spreadsheets.

13 And it's really the only explanation we've seen that makes  
14 sense. Google hasn't given us any explanation for why do they  
15 keep going back and forth. They represented initially the  
16 spreadsheet were both U.S. figures. Then they said, "No.  
17 Wait. We messed that up. They were both global." Now, all of  
18 a sudden, Dr. Knittel doesn't want to talk about it anymore,  
19 and they're bending about over backward to say he won't offer  
20 the opinion.

21 So I think that's what's really going on here, Your Honor.

22 **MS. CHANDRASKERA:** May I respond, Your Honor?

23 **THE COURT:** Yes, you can go ahead.

24 **MS. CHANDRASKERA:** We've heard a lot of attorney  
25 argument just now, but if you look at what is actually in

## PROCEEDINGS

1 Mr. Lasinski's two reports, these -- this analysis and these  
2 opinions are not -- are not disclosed.

3 In his initial report, Mr. Lasinski says, about the  
4 calculation, that the App Promo income statements he used are  
5 not labeled as being specific -- were not labeled as being U.S.  
6 specific, but he assumed they were.

7 Now in his most recent report, again another footnote, he  
8 says, "These new" -- he doesn't want to believe our  
9 stipulation, and so he says, "This other spreadsheet I found  
10 that we produced indicates that global TACs, as a percentage of  
11 revenues, were materially lower, so I'll try those as well."

12 He doesn't even put a number in this footnote, and he  
13 includes them in these alternative schedules at the back of his  
14 supplemental report.

15 Nowhere -- that is the extent, in his report, of what he  
16 says about this.

17 **THE COURT:** Nothing precludes you, should I allow  
18 that, from making all the points you just made when you examine  
19 that witness. So to some extent, that can be addressed. If  
20 you think he has no basis for it, you can test that  
21 proposition.

22 But, okay, I think I get it.

23 I'll go ahead -- I'm not going to rule from the bench. I  
24 want to go back and think about it. And when I give you a  
25 ruling, and I'll give it to you, hopefully, before we start on



## PROCEEDINGS

1 Monday, I'm just going to give you the ruling. We're at the  
2 point now where long orders that discuss these points I don't  
3 think is helpful. So I'm just -- I've heard it all and I'm  
4 going to tell you who wins and who loses.

5 **MS. BONN:** Thank you, Your Honor.

6 **THE COURT:** Okay.

7 **MS. CHANDRASKERA:** Thank you, Your Honor.

8 **THE COURT:** Okay. So Monday morning, 8:30, we've got  
9 Mr. Rodriguez. And then who's next?

10 **MR. DAVID BOIES:** We have Keegan, Mr. Keegan, who will  
11 be quite short.

12 We have -- we have Mr. Keegan who will be quite short. We  
13 have Mr. Heft-Luthy, who will be significantly longer. We also  
14 have that very short deposition that the Court is aware of that  
15 we'll play whenever there's a --

16 **THE COURT:** Marsiglia or --

17 **MR. HUR:** Miraglia.

18 **THE COURT:** Miraglia. Okay. I can't -- sorry. Okay.

19 **MR. DAVID BOIES:** Thank you.

20 **THE COURT:** Good. Thank you.

21 All right. See you all on Monday morning.

22 **ALL:** Thank you, Your Honor.

23 **THE COURTROOM DEPUTY:** Court stands in recess.

24 (Proceedings adjourned at 1:53 p.m.)

25 ---o0o---

**CERTIFICATE OF REPORTER**

I certify that the foregoing is a correct transcript  
from the record of proceedings in the above-entitled matter.

DATE: Friday, August 22, 2025

Ana Dub

---

Ana Dub, RDR, RMR, CRR, CCRR, CRG, CCG

CSR No. 7445, Official United States Reporter